PROFITABLE
OFFICE
SPECIALTIES

COVEY

Profitable Office Specialties

PROFITABLE OFFICE SPECIALTIES

BY

A. DALE COVEY, M. D.

Author of the Secrets of Specialists, the Non Surgical Treatment of the Diseases of Women, the Face, Its Diseases, Deformities and Blemishes, Etc.

S W Skinner M.D.

The knowledge that a man can use is the only real knowledge: the only knowledge that has life and growth in it and converts itself into practical power, The rest hangs like dust about the brain, or dries like raindrops off the stones.
—FROUDE.

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Preface

In my former publication "The Secrets of Specialists," I attempted to point out the methods of treatment by which many of the unethical physicians have made fame and fortune. In this publication I have endeavored to make a companion book which will be of more practical value by treating many of the minor specialties, which have been used with large financial returns by the ethical physician. I have christened this book under the title of "Profitable Office Specialities," not that I am trying to commercialize medicine; but with a view that an office practice may be conducted in such a way as will be conducive to a financial success, on the part of the physician and "profitable" to the patient by restoring the greatest jewel in life's crown of happiness—health.

I fully realize that there are many subjects briefly treated, which could have occupied the entire space of this publication. I also realize that most busy practitioners appreciate pointed and terse facts to exhaustive theorizing. I have therefore adopted the former policy and leave the latter for the many voluminous text books to which every physician has access.

One of the principal missions of this book is to encourage the general practitioner to properly equip his offices with modern therapeutic appliances, that he may be better able to "wage war" against disease, and at the same time make the practice of medicine a remunerative profession, as it should be compared with other vocations in life.

I might be criticised for too profusely illustrating the different subjects under consideration, but this is

pictorial age, and to me there is nothing so uninteresting as to read page after page of subject matter, with only a vague idea of what is being discussed; therefore to follow the tread of modern times "pictures save words" is the only humble apology I have to offer. It would often take a whole page to describe in detail a certain instrument, appliance or procedure whereby an illustration will give all the details at a glance.

Many of the different instruments and apparatus used to illustrate the subject matter in this book, are used without the knowledge of their manufacturers. I have often given the manufacturers' name, however, to save personal correspondence later.

These illustrations are the latest types of mechanical construction and thoroughly reliable in every respect, although perhaps there are many others just as good.

I have also quoted to some extent from physicians who specialize in different subjects, in all instances I have endeavored to give these physicians credit for their valuable assistance.

If this book will be the means in awakening a new interest in the practice of medicine, and encourage the physician to adopt these specialties, he has my assurance that he will be amply rewarded, both financially and professionally.

It will be a pleasure on my part to assist any physician in selecting and installing office equipments, or personally advise physicians regarding any of the specialties given in the following pages, with a view that they may obtain and maintain success, therefore your correspondence is solicited.

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A. Dale Covey, M. D.

Foreword

If we would allow our minds to drift back to the importance of the insignificant, we would find that many of the world's greatest achievements originated from apparently little things; in fact, a man's life is made up of an aggregation of little things. From the cradle to the grave, life is covered by a series of events, each small in itself, but all lengthening into a chain which comprises the span of earthly being. Shakespeare has said, "Some men are born great, some achieve greatness and some have greatness thrust upon them." This is quite true, but the really great men of the world, those who have built the imperishable structures of success, and pointed out the way to civilization and progress, leaving behind them the golden heritage of mighty achievements, did not have greatness thrust upon them, as the present Czar of Russia, but will more often be found among the common people. The writings and teachings of the late Count Leo Tolstoi will have a greater influence upon the world's future progress and civilization than all the wars brought to that nation through church and state.

In achieving greatness from little things we have had a Watt, who observed the steam pouring from the spout of a kettle, and evolved the steam engine. Davy, experimenting in the kitchen with pots and pans, discovered the safety lamp for miners. Edison says, "I was singing to the mouthpiece of a telephone, when the vibrations of my voice caused a fine steel point to pierce one of my fingers, held just behind it, that set me to thinking; if I could record the emotions of the point and send it over the same surface afterwards, I could see no reason why the thing would not talk."

He made the experiment and the phonograph is the result of the pricking of a finger.

So trifling a matter as the seaweeds floating past his ship enabled Columbus to quell mutiny, which rose among his sailors at not discovering land, and to assure them that the eagerly sought for New world was not far off.

The quacking of a goose is fabled to have saved Rome from the invading Gauls, and flies hastened the birth of American Independence. The continental congress held its meeting near a livery stable; its members wore knee breeches and silk stockings, and with handkerchiefs in hand, were diligently employed in lashing flies from their legs. To so great an impatience did the annoyance arouse the sufferers that it hastened, if it did not aid, in inducing them to promptly sign their names to that immortal document, the greatest ever penned, namely, The Declaration of Independence.

In all the world we find nothing which exists wholly within itself. There seems to be no form of existence so low, no atom so small, that it has not its appointed task in the economy of nature; even the dust which we despise, and with which the housekeeper wages a life long war, has, within a few years, been found to render varied and wonderful service. It gives to us the blue of the sky and of the sea; it is the canvas on which the sun paints the gorgeous colors of the morning and of the evening; without the dust there would be no diffused daylight. We would have to choose between the glare of the sun's direct rays and total darkness.

In the sciences, we have had a Newton unfolding the composition of light and the origin of colors, with a prism, a lens, and a piece of cardboard, and demonstrating the laws of gravity by the fall of an apple. Galileo conceived the idea of the telescope by watching little children putting pieces of glass on top of one another. Imprisonment could not convince him that the earth was stationary.

What has been discovered from the apparently in-

significant in nature and the sciences is equally true with the healing art. Franklin brought electricity from the clouds with a paper kite and key, which was followed by Galvani, an Italian anatomist, whose wife was making soup from frogs put them in proximity to a charged electrical machine; on touching them with a scalpel their legs became greatly convulsed. He then united the lumbar nerves of a dead frog with its crural muscles by a metallic circuit, and came to the conclusion that animal electricity existed in the nerves and muscles of frogs. His experiments, together with those conducted by his contemporary, Volta, have developed into the present system of Electro-therapeutics.

Hahnemann, the founder of Homeopathy, after graduating at the University of Erlangen and practicing the old school methods for several years, found that aconite and other remedies used at that period were given in too large and often in toxic doses, which produced more harm than good. Being disgusted with the prevailing methods of treatment, he abandoned his profession and devoted himself to chemical research and the physiological action of drugs. In these investigations, he occupied six years; they proved to him that, in all instances, the medicine which had cured produced a similar condition in healthy persons to that it had relieved. This conclusion he published in an essay in Hufeland's Journal in 1796. It was in this essay that the principle of Similia Similibus Curantur, "similar things are cured by similar things," was put forward by him. His views at once met with vehement opposition and are, even to this day, severely ridiculed by many members of the old school practitioners. If these physicians, however, would take the pains to investigate the physiological action of drugs they would discover that Hahnemann's fundamental principles are correct in most instances.

Referring to Potter's Materia Medica, or any other Materia Medica of the old school, we find that in toxic doses and in the physiological action of aconite, "the heart rate becomes very rapid." Concerning its thera-

peutic action we see stated: "It has well been called the therapeutic lancet. Its power over the circulation, to control forcible cardiac action renders it of the greatest value in all affections characterized by a high resisting pulse." Potter further states that "aconite is best administered in small doses." Quoting from the same author, (Potter), we find that quinine has, "in many well authenticated instances apparently caused a well marked febrile paroxysm, beginning with a chill, then fever and headache which gradually subsided, with slight perspiration," resembling in nearly all its details intermittent fever.

Name a remedy which will produce symptoms resembling syphilis more than mercury, and show me a text-book of the old school, in which mercury is not pointed out as the specific treatment; "touching the gums" with this remedy is the first step sought for by nearly all practitioners. We could study the physiological action of nearly every medicine used by the Homeopaths, and find the laws of Similia founded upon a logical basis; and, although Hahnemann's teaching was not directed toward the high potencies it established a basis for the study of the physiological action of drugs.

Dr. Samuel Thompson, the founder of the Botanic school of medicine, was laughed at when he was seen carrying his little tin teapot from house to house, to administer infusions from roots and herbs, which he had garnered from nature's vast laboratory of healing products; yet he laid the foundation which has been evolved into the Eclectic system of medicine. I have always admired the word "eclectic;" it has a meaning, —selecting or choosing from different systems In the broad sense of the term, all liberal and broad-minded physicians are eclectic.

Dr. Still, who was a surgeon in the United States army during the civil war, observed that the soldiers were only human machines, that might become impaired by fatigue or injury, the same as other pieces of mechanism. From this reasoning, he conceived the

idea that manipulation could be made to stimulate functions to their normal activity, and concluded that he had found a new science. To this system of healing he gave the name "Osteopathy," not because he regarded all healing as "bone setting," but because he regarded the bones as nature's medium of manipulating the human system; just as the different schools of medicine regard drugs as a means of healing disease. Through Dr. Still's instructions has been laid the foundations for vibratory massage, chiropractic, therapeutics, etc.

In investigating psycho-therapeutics we find the same humble beginning: the "shrine of our lady" at Lourdes was discovered by two little children, who were gathering fire wood in the forest; yet if we could witness the pilgrimages to these holy waters and accept the authenticated reports of cures we would bow our heads in reverence.

When Mrs. Eddy, the late Lydia Pinkham of the soul, and the founder of Christian science, was a hysterical maniac, and would live for days at a time in an almost continuous state of collapse, her good husband, Mark Baker, would take the grown woman in his arms and rock her to sleep like a baby, for which treatment she seemed to have a mania; she little realized that self-control of mind would develop into a sacriligious healing art (?), which is neither Christianity nor science, yet her teachings are reverenced by over one million disciples.

I have always attempted to make it a practice, if I could not say something good about a person or cause to say nothing at all. I will, therefore, refer my readers to Mrs. Eddy's book "Science and Health," which, according to my belief, could be synonymed "pseudo-nonsense."

We find there are as many "pathies" in the healing art as there are creeds and dogmas in religion, and while each sectarian college is endeavoring to excel the other, as physicians we are all aiming at the same physiological target—to maintain and retain health.

When we prove our poor markmanship, and waste our ammunition on the desert air our reverend brethren are dogmatically directing our pathway towards only one great pinnacle—the immortality of our souls.

There has been much said in medical literature regarding a united medical profession, but little advancement has been made in this direction. The medical profession within the last few years, however, has learned that medicine alone does not play the only important role in restoring health to the sick and suffering, and there are many drugless sanitariums contributing their records of success in healing the sick. As disciples of Hippocrates, we must accept the truth when it is placed before us in an unquestionable manner We therefore find electricity, baths, manual and vibratory massage, osteopathy, heat, light, rest, and allied therapeutics, as adjuncts to medicine, are indispensable as therapeutical measures. To the hard shelled medical practitioner, who is wedded to his "pill bags," these adjuncts may appear as little things, yet, in reality, they are the big things which will assist him in a professional and financial way.

Every physician may not achieve the reputation of being a great surgeon, pathologist or therapeutist, yet in his humble way, he may be doing more good for humanity's sake in healing the sick and alleviating suffering than some of the greater lights, and to receive the gratitude of his patients will not always depend upon some capital surgical operation or heroic therapeutic measure. I have often received more gratitude for the eradication of some unsightly scar, birthmark or even mole on the face than I have for the removal of a large malignant growth elsewhere on the body.

If the information contained in the following pages will render any assistance in directing the pathway toward success by pointing out the way whereby the apparently little things have proven successful in the healing art, the writer will feel that this little book has quite fulfilled its mission.

Office Equipment

One of the most important things to be considered in adopting the office specialties, is a convenient suite of office rooms and their equipment. The work-shop of the physician is of as great, or even greater importance than the one of other vocations in life, and a well located and finely equipped office, not only allows the physician to combat with disease to a better advantage, but also reacts, in both a professional and financial way, by what may be termed silent ethical advertising. Physicians do not realize the impression it leaves upon their patients' minds to witness all the modern, therapeutic appliances and apparatus in operation; an impression of prosperity and success, and that you are abreast with the times in all modern and scientific methods of treatment, which is true; this alone, will give you a professional standing, which can only be duplicated by other physicians who follow in your wake.

In former years many physicians have been accustomed to a few text books, a few surgical instruments, and access to drug store supplies of deteriorated tinctures, extracts and elixirs; these, together with a medicine case, filled with the products borrowed from the drug store, and an office in their hats, constituted the equipment of fully one-half the physicians in the United States. Today the progressive physician considers his office, livery, and other equipments his professional assets, and his skill in utilizing them his liabilities; and to mantain a successful balance depends upon his executive qualifications. The old adage that "fine feathers make fine birds" is perhaps more true in a physician's

life than in any other profession A pleasing personality and personal magnetism establish a feeling of friendliness between physician and patient; a well-appointed office, with a thoroughly scientific equipment, is among the most valuable of a physician's assets. Just as the personality of some men is attractive, and that of others repulsive, so are the personal environments of some physicians' offices attractive, while in others they are repellant. Although a physician may pride himself upon being punctual in attendance at office hours, he is frequently detained on some important case, which will not allow him to meet his appointments. What is there that can be more discouraging to the patient who is in ill-health and naturally nervous, and restless than to be required to wait in a bare, dismal, cheerless room; destitute of pictures, with a few magazines dated several years back, and often uncomfortable chairs? A physician's business, like all others, should have the modern tendency toward comfort and even luxury in its surroundings, and his reception room should be the first to receive careful consideration. Let the walls be decorated with appropriate pictures, incident to a physician's life, and those which appeal to the imagination and the sense of beauty; arrange the bric-a-brac, curios and other decorations so they will excite the interest of the beholder. Allow your chairs to be the most comfortable obtainable. An open fireplace is a luxury in any room, as the glow of the fire offers cheerfulness, and the solace of the grate has a therapeutic influence upon many patients. Your reception room table should be loaded with the latest periodicals from both the literary and cosmopolitan press; in fact the room, in general, should be furnished in as luxurious and attractive ways as possible. Such evidence of good taste and refinement has much to do in reinforcing the personal qualities and the professional skill of the physician. If you have an office attendant, be sure to avoid the pessimistic, gossiping crank; select one whose cheerfulness predominates, and the corners of her mouth turn upwards, always remembering the value of a smile:

"The thing that goes the farthest
Towards making life worth while;
That costs the least, and does
The most, is just a pleasant smile.
The smile that bubbles from the
Heart that loves its fellowmen,
Will drive away the clouds of
Gloom and let the sunshine in.
'Tis full of worth and goodness too,
With genial kindness blent;
'Tis worth a million dollars, and
It doesn't cost a cent.

The presiding princess of your office should not only be a good entertainer, and exercise every effort to retain patients during your absence, but she should possess qualifications sufficient to allow her to assist you with your operations, etc.

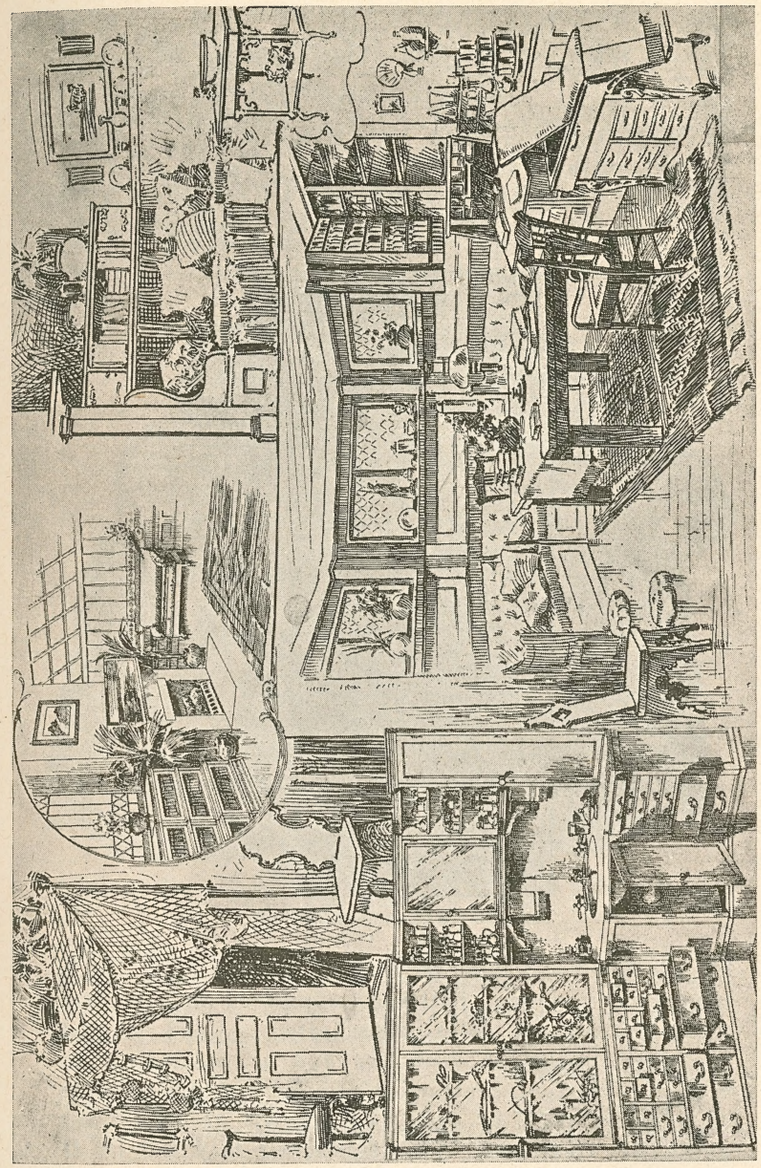
The next important room to be considered is your consultation apartment; this room should be furnished to conform with the reception room, in taste of arrangement, etc., and may also be used as a general operating and treatment room, as it generally is by most physicians who have limited space. In this room may be placed the electric machines and appliances, the therapeutic lamp, electric vibrator, surgical chair, atomizers, nebulizers, etc., although many physicians prefer to treat the throat, nose and lungs in a separate room, owing to the disagreeable odor from the medications. They, therefore, use another room, which they call the "inhalitorium;" the walls are either tiled or papered with polished bathroom paper, which can be washed and kept antiseptic for surgical work. It is also a great advantage to have an additional room, equipped in the same way. If baths are incorporated in your armamentorium, you will require more space; one or two rooms for giving the baths proper, and at least two rest rooms, where patients can undress and dress, and also rest after the baths, until their bodies have become acclimated to the prevailing out-door temperature.

The subject of baths will be more thoroughly discussed in another chapter.

In order that the reader may form some conception of the arrangement of the offices in question, he is referred to the accompanying illustrations. Similar offices could be arranged in any city where the erection of buildings is constantly going on; you will always find the landlord willing to give you a long lease, and arrange the rooms to suit your taste. It is a great advantage to locate your offices on a corner, owing to the light in all the rooms from the side, and not through skylight. Many physicians prefer to occupy an entire house and conduct a cottage sanitarium. This will also be found a profitable enterprise, if the location is such that you are assured of a reasonable patronage. The cottage sanitarium has a great advantage over the offices outlined in the foregoing paragraph, inasmuch as you can have your patients constantly under your observation. This is very desirable in many cases, especially where surgery, the alcohol and drug habit, cancer and other similar diseases are placed under your care for treatment.

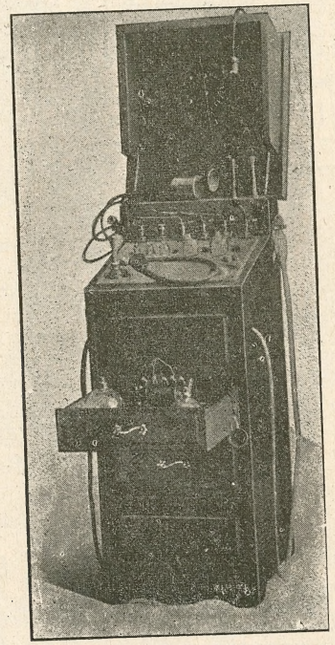
In taking under consideration such an enterprise the first question a physician will ask is: Will I be sufficiently remunerated for the extra outlay of money to justify me in scientifically arranging such offices? This brings us to the point of what equipment we will install, and the cost of same.

Modern inventive genius has made great advancements within the last few years, and today the physician can install scientific appliances, and apparatus at almost any price that will fit his purse. This is illustrated in the two cuts, given on another page, of nebulizers; one is sold for $12.50 complete, while the other is valued at $50.00. One machine will do as good work as the other; although the cheap machine is not as convenient for the physician, nor as attractive to the patient, the therapeutic value is upon an equal basis, and such is the case with nearly all other mechanical aids. Physicians can also make as large a display with their



SUGGESTIONS FOR A PHYSICIAN'S OFFICE.

apparatus as they desire, or have it condensed in as small a space as they wish. This is exemplified by one of the latest creations, which is known as the Siebert-Welch apparatus, (see cut.) This wonderful little piece of condensed mechanism only occupies a space fifteen inches square by forty-five inches high, and weighs not to exceed one hundred pounds; yet within its walls are contained a complete atomizing and nebulizing outfit,

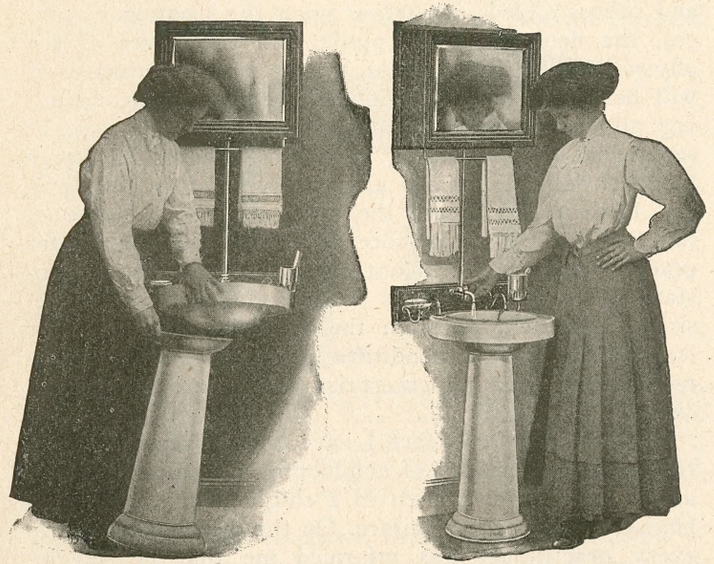


SIEBERT-WELCH APPARATUS.

hot air douch, vacuum apparatus for conducting Bier's hyperemic treatment, tankless compressed air, complete vibratory massage outfit, superheated air and vacuum combined. Galvanic electricity and a combination of vibration, dilation, contraction and massage are possible of administration at one time, known as the Intro-gymnastic treatment. This equipment may not be as

attractive as the different instruments stretched along the walls where they will make a better display, but such an apparatus will be exceedingly convenient for the physician with small office space. What is true with the technical outfitting is also true with toilet requisites and other office furniture, as is illustrated in the accompanying cuts.

In selecting scientific equipment for the advanced therapeutics will depend largely upon the amount of space you expect to occupy, and the amount of capital



Physician's Supply Co.'s portable lavatory can be installed in any office without city water supply in five minutes.

you wish to expend. In order that I may give the reader some idea of such an equipment, I will briefly outline some of the accessories required, and the minimum and maximum cost of same.

	Minimum	*Maximum*
Operating chair or table.....	$12.50 to	$100.00
Atomizing and Nebulizing outfit..	12.50 "	50.00

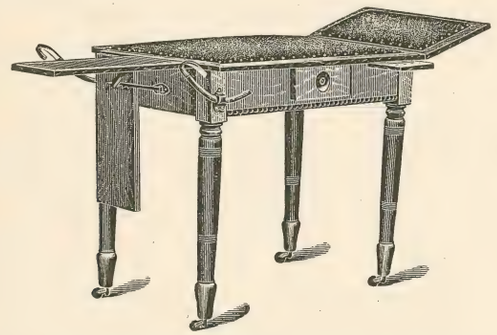
Vibratory outfit.....	15.00 "	75.00
Galvanic and Faradic Electric Cabinet	22.50 "	75.00
Static Machine and accessories....	150.00 "	300.00
Therapeutic Lamp outfit.....	30.00 "	100.00
Bath equipment.....	100.00 "	300.00
Optical Case for fitting glasses....	..... "	60.00
Ozone outfit.....	30.00 "	200.00

While the above are the essential requirements for a thorough scientific equipment, some may be omitted and others added, depending upon the location of offices, the demand of the public and the desire of the physician. To fulfill these by the above estimates it will be seen that a completely furnished office, including all furniture, mechanical apparatus, etc., may be secured at prices ranging from five hundred to fifteen hundred dollars. I have always deemed it a good policy, however, to secure the best, not only because "a thing of beauty is a joy forever," but because the better grade of apparatus will not become impaired from constant use, but can always be depended upon when desired. The next question the physician may consider is: will the extra expenditure of capital justify him in establishing such an enterprise and where will he locate?

For the last ten years I have been a very close observer of this method of conducting a medical practice, and I have never known of a single instance where a physician has made a failure. On the other hand, nearly every practitioner has informed me that he has increased his yearly income over one hundred percent. Most physicians conduct their business under their own names, while others prefer the name of sanitarium, hospital, institute, etc. This is particularly so where a residence is occupied for offices; thus we find the Red Cross Sanitarium, Doctor Brown's Medical Institute, Doctor Hay's Electro-Medical Institute, Doctor Covert's Inhalitarium, Doctor Ball's Gold Cure Institute or Retreat, Dr. Clark's Cancer Hospital, and others located throughout the country. Where a single specialty is

practiced as cancer, or alcohol and the drug habits, it is generally in the name, as above, but inasmuch as the treatment of these specialties have been robbed of its mysteries, have ceased to be a "trick." Any physician can treat these pathological conditions by following the instructions given in the following pages, there is no reason why they should not be incorporated in every physician's practice.

The erroneous opinion has prevailed among physicians that such an office or institution should be located in a city, but such is not the case, as medical competi-

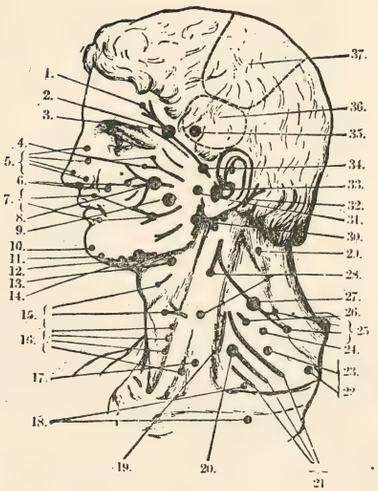


The above cut illustrates the Physicians Supply Co.'s Improved Operating Table. This table is made of oak, highly polished, and fills all the requirements of a physician's operating table or chair. Both ends can be raised or lowered independently, at any desired angle. It is provided with an extension, sliding out from either side, convenient for holding the arm or instruments during an operation. It has two stirrups, which can be adjusted to any length and concealed when not in use. As an economical (Price $10.00) and desirable piece of office furniture it is doubtful if the table can be excelled.

tion is fairly well equalized throughout the country. I have known physicians who have established these offices in hamlets of less than five hundred population, that have patients visit them from the city, and other places hundreds of miles distant. In selecting a new location, however, I would advise a physician to choose a city which contains a population from five thousand upwards. In the following pages I will outline many specialties which may be used to great advantage in office practice. These aids I have divided into the physiologic methods of treatment, and medical and surgical specialties.

Physiotherapy

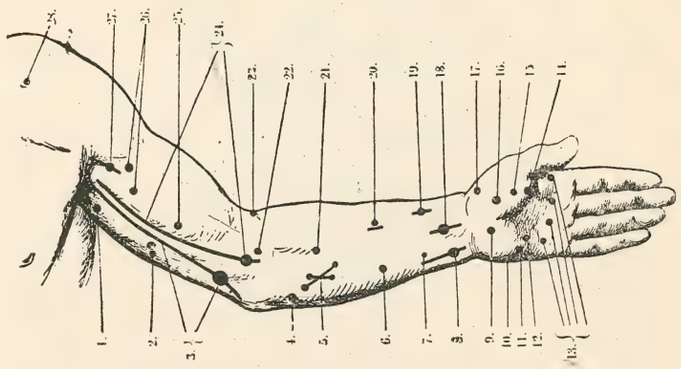
Under the above caption may be described all the physical or so-called "physiologic methods" of treatment which have entered largely into the therapeutic field within the last half and quarter century. In the broad sense of the term they incorporate nearly all methods of healing other than medicine itself; it is, therefore, the drugless method and the natural method of treating disease. Many of these methods are the oldest known to man; but only within recent years have they been harnessed by science, and recognized and utilized by the medical profession as a scientific means of treating disease. It was nearly a half century ago that Dr. Oliver Wendell Holmes made the classical remark, "If all the drugs were cast into the sea it would be well for man, but bad for the fishes." There is no doubt that this veteran in American medicine was far seeing in his predictions, and realized that medicine alone was a deficient means of treating the sick and alleviating suffering in all diseases, and the future physicians would utilize accessories and adjunct means to restore health to the afflicted. It was in the year 1858 that Dr. Rudolph Virchow delivered his first lectures on "Cellular Pathology," advancing the theory of cell life and the nature of all vital processes. This was the first step forward to evolve and demand the application of electricity, manual and vibratory massage, light, and other means to promote, stimulate and restore new cell life. It is only within recent years that Koch's researches in bacteriology and the discovery of the tubercle bacillus which has made his name immortal. When this scientist announced that the bacillus of the "Great White Plague" could not exist when exposed



MOTOR POINTS OF FACE AND NECK.

1. Frontalis.
2. Facial nerve (super.).
3. Corrugator supercil.
4. Orbicularis palp.
5. Nasal muscles.
6. Zygomatici.
7. Orbicularis oris.
8. Facial nerve (med.).
9. Masseter.
10. Levator menti.
11. Quadratus menti.
12. Triangularis menti.
13. Hypoglossal nerve.
14. Facial nerve (infer.).
15. Platysma myoides.
16. Hyoid muscles.
17. Omohyoideus.
18. Ext. ant. thoracic nerve (pectoralis major).
19. Phrenic nerve.
20. Fifth and Sixth cerv. nerves (deltoideus, biceps, brachialis, supin. longus).
21. Brachial plexus.
22. Long thoracic nerve (serratus magnus).
23. Circumflex nerve.
24. Dorsalis scapulæ nerve (rhomboidei).
25. Trapezius.
26. Levator anguli scapulæ.
27. Spinal accessory nerve.
28. Sterno-mastoideus.
29. Splenius.
30. Facial nerve (inf. branch).
31. Facial nerve (med. branch).
32. Post. auricular nerve.
33. Facial nerve (trunk).
34. Facial nerve (sup. branch).
35. Temporalis.
36. Third frontal convol. and insula (centre of speech).
37. Ascend. front and pariet. convol. motor area).

to the sun's rays he revolutionized all previous methods of treatment. Although in the past this disease has caused more deaths than all the wars of the nations, these sufferers can now look heavenward and behold two of the greatest healing agencies nature has ever given to man—the sun and the pure air enriched with oxygen. It is largely the researches of modern physi-



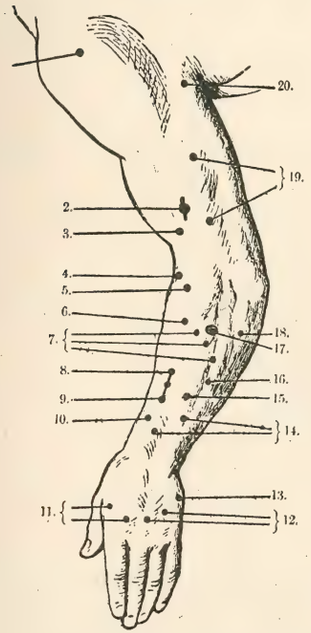
MOTOR POINTS OF INNER ASPECT OF LEFT ARM.

1. Triceps (cap. long.).
2. Triceps (cap. intern.).
3. Ulnar nerve.
4. Flex. carpi ulnaris.
5. Flex. dig. com. prof.
6. Flex. dig. (II et III) subl.
7. Flex. dig. (ind. et min.) subl.
8. Ulnar nerve.
9. Palmaris brevis.
10. Abductor dig. min.
11. Flexor dig. min.
12. Opponens dig. min.
13. Lumbricales.
14. Adductor poll. brev.
15. Flex. poll. brev.
16. Opponens pollicis.
17. Abductor pollicis.
18. Median nerve.
19. Flex. poll. longus.
20. Flex. subl. digit.
21. Flex. carpi radialis.
22. Pronator radii teres.
23. Supinator longus.
24. Median nerve.
25. Brachialis anticus.
26. Biceps.
27. Musculo-cutan. nerve.
28. Deltoideus (ant. port.).

ology, physiological chemistry and bacteriology which have demanded the abandoning of drugs in the treatment of many diseases; and although drugs will always bear their respective influence in the treatment of disease, they are not capable of mastering all pathological conditions alone, and the "physiologic methods" are rapidly and legitimately winning their way into favor in modern therapeutics.

In order that the reader may form a clear conception of the nature of physiotherapy I quote the following from an editorial in the *American Journal of Physiologic Therapeutics:* "The modern conception of disease regards it no longer as a concrete entity to be forcibly driven out nor as the objective clash of contending elements across the passive arena of the patient's body; but as the interplay of action and reaction

MOTOR POINTS OF OUTER ASPECT OF LEFT ARM.

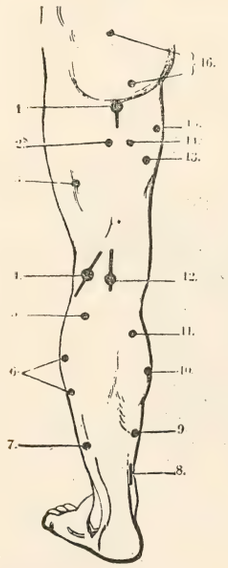


1 Deltoideus.
2 Musculo-Spiral Nerve.
3 Brachialis Anticus.
4 Supinator Longus.
5 Extens. Carp. Rad. Long.
6 Extens. Carp. Rad. Brev.
7 Extens. Comm. Digit
8 Extens. Indicis.
9 Ext. Oss. Metac. Poll.
10 Ext. Prim. Intern. Poll.
11 Interossei Dorsal.
12 Interossei Dorsal.
13 Abduct. Min. Digiti.
14 Ext. Sec. Intern. Poll.
15 Extens. Indicis.
16 Extens. Min. Digiti.
17 Supinator Brevis.
18 Extens. Carpi. Ulnar.
19 Triceps.
20 Triceps.

between the whole organism and its environment—a dynamic affair of perverted reaction to stimulus. Under this conception of disease, it is inevitable that our conception of therapeutics should become similarly dynamic and reactionary. Rational therapy no longer aims to force action, whether of drugs or of anything else, upon the organism, but to arouse proper reaction within it, in which the whole organism must partici-

pate. This is Physiologic Therapeutics in its broadest and profoundest sense. And it calls forth, as its materia medica, every means and agency which experience has shown certain, or reason renders likely, to bring about such desired and adequate reaction.

It is not denied that drugs may, and in many instances do, come within the range of this conception of therapeutics. Certainly there is no intention of sug-



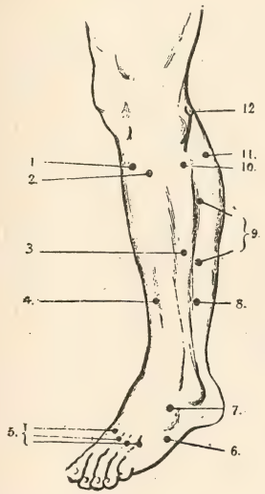
MOTOR POINTS OF POSTERIOR ASPECT OF LEFT THIGH AND LEG.

1. Sciatic nerve.
2. Biceps femoris (cap. long.).
3. Biceps femoris (cap. brev.).
4. Peroneal nerve.
5. Gastrocnemius (cap. ext.).
6. Soleus.
7. Flexor hallucis long.
8. Tibial nerve.
9. Flexor digit. comm. long.
10. Soleus.
11. Gastrocnemius (cap. int.).
12. Posterior tibial nerve.
13. Semi-membranosus.
14. Semi-tendinosus.
15. Adductor magnus.
16. Gluteus maximus.

gesting that therapeutics can dispense with drugs—not in our lifetime, at all events. But there are several reasons why drugs do not most fitly represent, or most readily identify themselves with, dynamic therapeutics. For one thing, we have used them so long for their pharmacological effect, that practically all of our drug therapeutics must be learned over again to adapt it to dynamic therapy. For another, our control of drug action, while it is much more accurate than it used to be, is still, and must in the nature of things continue to be, too uncertain to compete, in physiologic results, with

the drugless modes. But of far deeper import yet is the fact that drug therapy does not represent the same degree of proximate principle in therapeutics that these other modes do. That is to say, the latter constitute a group of therapeutic agents "existing ready formed" (as we say of chemical proximate principles) and available for application by means which do not alter or destroy their complex unit of potentiality.

The whole future of therapeutics is without doubt a question of body defense—in which are to be included,



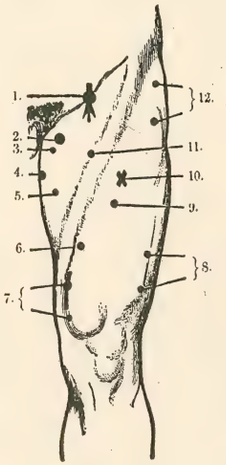
MOTOR POINTS OF OUTER ASPECT OF LEFT LEG.

1. Tibialis anticus.
2. Extens. digit. longus.
3. Peroneus brevis.
4. Extens. hallucis longus.
5. Interossei dorsales.
6. Abductor min. digiti.
7. Extens. digit. brevis.
8. Flex. hallucis long.
9. Soleus.
10. Peroneus longus.
11. Gastrocnemius.
12. Peroneal nerve.

not alone the phagocytic defenses of the blood, as exemplified in the sera and vaccines, but all the natural or acquired processes of functional reaction by which the organism, or any part of it, defends itself against disease and death. This is Physiologic Therapeutics, in its broad intent. It is not a mere arbitrary fad in medicine that has created a new class of materia medica and labeled the "physiologic methods," in distinction from drug remedies; not a passing vogue that has given these methods accuracy. It is that, in the unfolding of the new dynamic concept of disease, and the conse-

quent search for a corresponding system of therapy, medicine has been obliged to transcend the realm of drugs and to cultivate a field of therapeutics which afforded, as stated, a more proximate principle of dynamic reaction. And this field constitutes the class of so-called drugless or physiological remedies.

We do not belittle the place of drugs in medicine. It is probable that they will play an important role in therapeutics. But we unhesitatingly predict that the principle of Physiologic Therapeutics, as we have



MOTOR POINTS OF INNER ASPECT OF LEFT THIGH.

1 Crural Nerve.
2 Obturator Nerve.
3 Pectineus.
4 Abductor Magnus.
5 Abductor Longus.
6 Cruralis.
7 Vastus Internus.
8 Vastus Externus.
9 Rectus Femoris.
10 Quardiceps.
11 Sartorius.
12 Tensor Vag. Femoris.

briefly tried to expound it, will dominate the spirit and practice of medicine of the future—even of the near future."

Taking from this the basic principles of physiologic therapeutics as a "defense against disease," we find the physical methods far superior to drugs in many diseases. Where can we find a drug in the Materia Medica that will produce the reaction upon muscular and nerve fiber to compare with electricity? Where is there a drug that will compete with light and heat, relative to its influence upon the skin and bacteria, and

so on through the entire chain of physical methods of defending the body from the invading enemy—disease?

These methods have been classified under different names and systems, incorporating electricity, hydrotherapy, phototherapy, mechano-therapy, thermotherapy, vibrotherapy, osteopathy, massage, physical training and all the kindred sciences Many of these systems are so closely allied as to involve many of the fundamental principles; each has its independent therapeutic action however, inasmuch as the vaso-motor centers of the body enter largely into the basic principles of this field of practice I have inserted among the foregoing pages illustrations outlining these centers, which are of the greatest value to the physiotherapeutist

It is an easy matter to locate these centers when you are in a dissecting room, where the map portraying the geography of the body is before you, but when this is covered by the integument, these land marks are more obscure I have also tried to illustrate the following chapters with drawings that each chapter will be easily comprehended

In conclusion, I will add if there is any one course to create harmony among the sectarian schools of medicine and promote a united medical profession, it is physiologic therapeutics

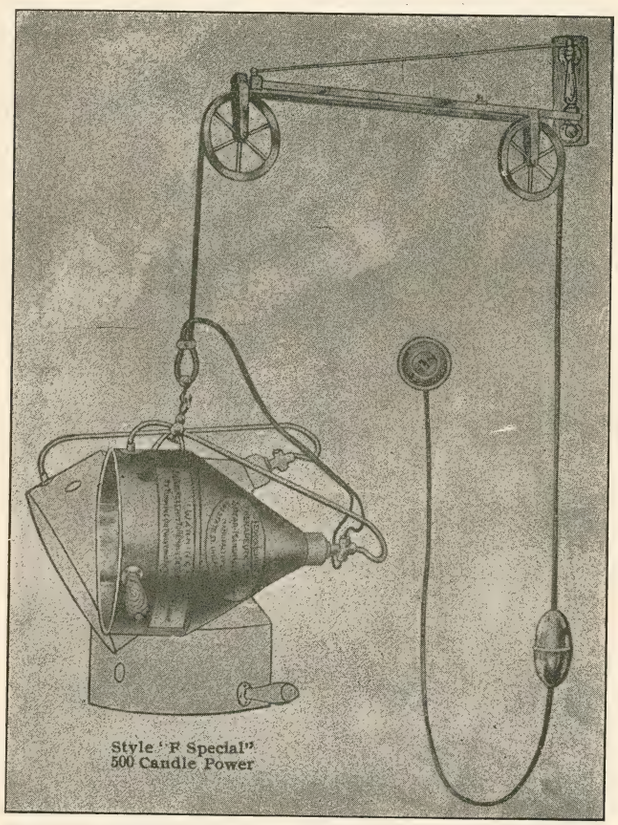
The allopathic physician will cease to pseudonym the homeopath a "dispenser of imagination" and the homeopath and eclectic will not refer to the allopath as a member of the "dominant school of medicine," but all will unite in one tenet, and

"Live for those who love you,
And those who know you true;
For the heaven that smiles above you,
And the good that you can do"

Therapeutics of Light

Ever since the sun's rays have been shining upon the face of the earth we have been in possession of the oldest and one of the greatest natural healing agencies, and although all animal life has recognized the influence of light and heat from instinct, as a therapeutic measure, it has only been within the last few years that the scientific principles of the therapeutics of light have been investigated and utilized to any great extent by the medical profession. It was in the year 1895 that Rœntgen announced the results of his investigation of the X-ray, and, in the same year, Finsen treated and cured his first case of lupus by the ultra-violet rays. It we would visit the grounds of the All-Denmark Hospital in Copenhagen, we would see erected a national monument to the memory of Nils Finsen, whose investigation into the effect of light upon the human body has brought hope and relief to thousands of suffering humanity. His discovery has marked a definite step forward in medical science, and in this beautiful memorial (see cut), entitled "Towards the Light" is produced three figures straining toward the light to regain their health.

Finsen's investigations were followed by Arloing d'Arsonval DuBoise, Geisler, Graber, Bert and others; today the utility of light is recognized as one of the indispensable physiologic means of treating and curing disease.



LEUCODESCENT THERAPEUTIC LAMP.

THERAPEUTIC LIGHT APPARATUS.

One of the most important requisites to conduct light treatments, is a well constructed lamp. The Finsen light which is so well and favorably known is too

elaborate and expensive for the general practitioner; we will, therefore, only consider the incandescent and arc lights, which are easy to operate and uncomplicated in their technique. The lamp for all general purposes should be capable of producing light energy, which will be equivalent to from 300 to 500 candle-power, and ninety per cent of the lamps in use are of the stronger light power. The volume of light and heat should be easily regulated to suit the requirements for different diseases, and also economize in the operation of your lamp. The lamp should also be capable of adjustment to any angle, that the patient may receive treatments in either the sitting or recumbent position. Colored screens should also be provided for those who desire to test some of the claims made for colored light in therapeutic work; with these few considerations you will have a light to conduct your work which will be satisfactory at all times. I am personally impartial to all lamps, but my experience has been confined to the leucodescent lamp, manufactured by Spear-Marshall Co., Chicago, and the solar therapeutic arc lamp, manufactured by the Good Health Publishing Co., Battle Creek, Mich.

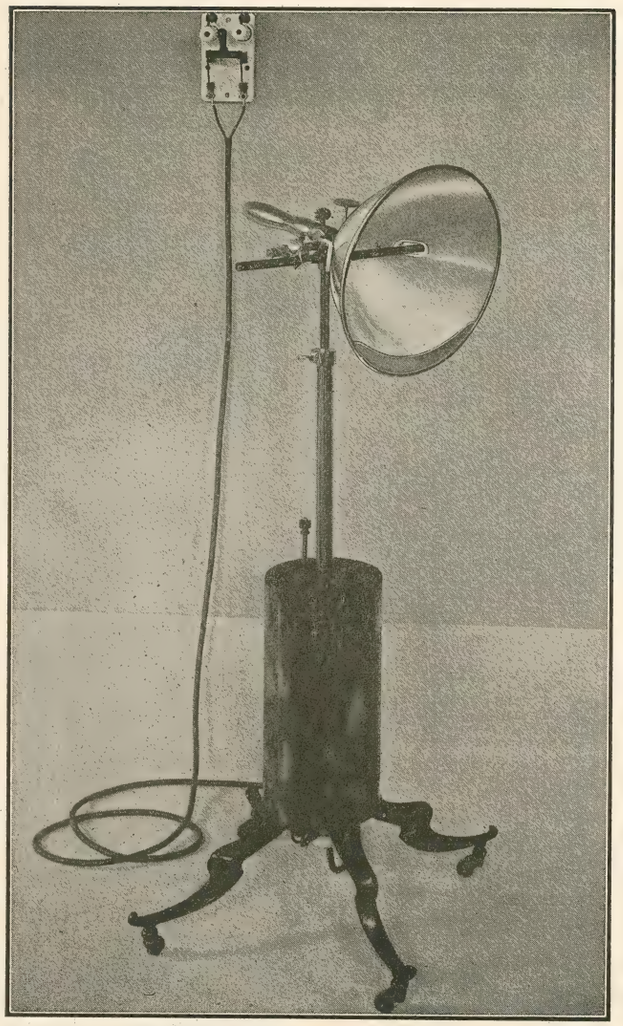
CLASSIFICATION OF LIGHT RAYS AS USED IN THERAPEUTICS.

If we would observe the colors of the rainbow, or take a prism, (cut diamond), and bring its reflection against a screen, we would see the seven primary colors which constitute the spectrum—red, orange, yellow, green, blue, indigo and violet—although in reality there are an enormous, if not an indefinite number of colors in the spectrum, but for convenience of classification and therapeutic purposes, they have been divided and subdivided into the following classes:

Thermic or Heat Rays—Red and infra-red.

Luminous Rays—Orange, yellow and green.

Chemical or Actinic Rays—Blue, indigo, violet and ultra-violet.



THE SOLAR THERAPEUTIC ARC LAMP.

It will thus be seen that all the rays of light except the infra-red and ultra-violet are within the visible spectrum.

Finsen's original theory was that the curative value of light was greatest at the ultra-violet end of the spectrum; although he did not entirely ignore the value of the remaining rays in certain indications. The Finsen apparatus for light treatment, however, is designed with a view of producing light with the greatest possible number of ultra-violet rays, and the elimination, largely, of the remaining rays of the spectrum; this is the reason the blue, indigo, violet and ultra-violet rays are often referred to as the Finsen rays.

The chemical or actinic rays, the luminous and thermic or heat rays, each, apparently, have their individual therapeutic action but their value is not destroyed when used as a unity. In classifying the therapeutic value of the light rays there has been some diversity of opinion.

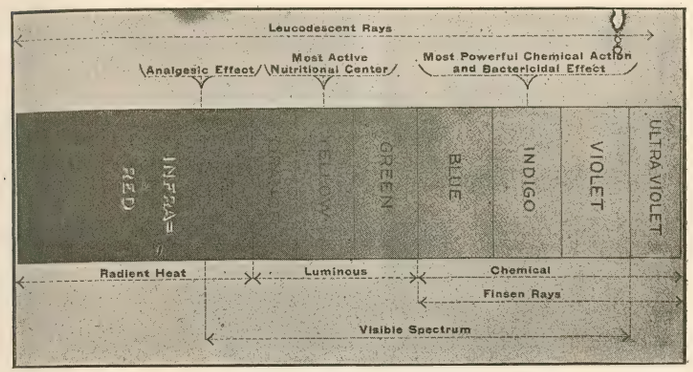
Freund has gone so far as to exclude the thermic rays from the therapeutic field, which is a great omission, as heat combined with light is indispensable in the treatment of many conditions; that each color of the spectrum bears an important therapeutic value is beyond question and has the endorsement of the most constant observers.

In resuming the utility of light as a healing agent, the light rays have been classified as follows:

Chemical or Actinic Rays, find their greatest field of usefulness in the destruction of bacteria and their antiseptic effect; when used alone they are superficial in effect, and will not penetrate below the skin's surface, hence various devices have been used to increase their penetration. The blood in the tissues absorbs the penetrating power, and when this is forced out by pressure, and other means, their influence is more active; these rays are depended upon for their bacteriacidal influence in all forms of superficial septic and suppurative diseases; lupus, acne vulgaris, eczema, epitheloma and kindred affections, and when combined with other light

rays, reinforces their action in the treatment of more deeply seated diseases.

The Luminous Rays bear their greatest influence upon nutritional centers, increasing the number of red blood corpuscles; they also increase the percentage of valuable in all diseases where there is a wasting of tissue. The central rays of the spectrum are also sedative to nerve tissues.



RAYS OF THE SPECTRUM.

Dr. Schlanger has demonstrated that green and blue light would quiet maniacs when other means would fail; he therefore provided a room with green and blue windows for this sedative effect. Anæmia chlorosis and other deficiencies of the blood and tissues are greatly benefited by the luminous rays.

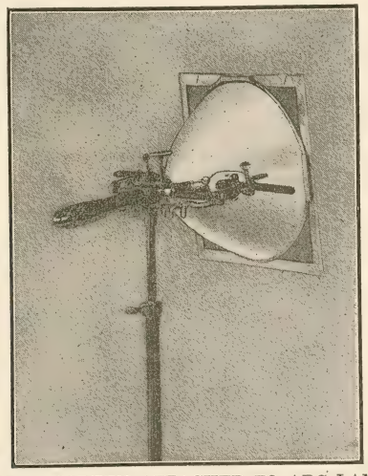
The Thermic or Heat Rays—It is the penetrating qualities of the vibratory energy of the red and infra-red rays, used in conjunction with other rays that assist their therapeutic action in deep-seated affections, if combined with heat, and the unity of the other rays of the spectrum with the therapeutic lamp. Radiant heat rays' greatest influence is as an anodyne and analgesic and to obtund pain it is therefore the therapeutic agent used.

EFFECTS OF LIGHT UPON ANIMAL TISSUES.

Light and heat have always been symbolical of life, while cold and darkness have been emblematic of decay and death; we find the highest forms of animal and vegetable life thriving under the influence of heat and light and, usually, the lowest forms existing in cold and darkness. The effect of light, therefore, seems to vitalize all tissues and functions of the body; nearly all observers agree that the following histological changes occur in the tissues exposed to the light, viz., it increases the activity of all tissue cells, and produces a pronounced dilatation of the superficial and deep cutaneous blood vessels; the migration of the leucocytes and swelling of collagen hyperplasia of the epidermis and thickening of the rete mucosum. The influence of light upon blood vessels and circulation tends to increase the circulation and remove effete material, and bears the same relation as a mustard plaster or hot fomentation and chemical irritants. The cutaneous glands are stimulated and profuse perspiration ensues, likewise encouraging the eliminative process. That combined light and heat is more active than heat alone is exemplified in the electric light bath, which is nearly twice as active in producing perspiration, although the electric light cabinet may be at a lower temperature than the hot air or vapor bath cabinet.

Metabolism is also greatly stimulated by the effect of light rays impinging upon the nerve endings of the skin, oxidation is greatly increased through the influence of light and the hemoglobin of the red cells is enriched by its absorption. When we realize the rapidity in which the blood circulates and the comparatively short time required for the entire volume of blood to pass through a given surface, exposed by a therapeutic lamp, we can appreciate the value of light in destroying phagocytic bacteria and the elimination of waste and diseased material.

The chemical rays of lights are more germicidal in their action than many drugs. They will destroy tetanus germs more rapidly than a one to one thousand bichloride of mercury solution. Koch and Kitasato have proven that tubercle and plague bacillus perish on exposure to the sun and the same is true regarding the destruction of bacillus of other diseases. There is a difference of opinion as to how the bacteria is destroyed; some claim it is due to the changes in the tissues, caused by the light and others that it is the direct influence of the ultra-violet rays.



COLOR SCREEN ATTACHED TO ARC LAMP.

LIGHT AS A THERAPEUTIC AGENT.

In the application of light as a therapeutic agent, it is absolutely necessary that the rays of light should be applied directly to the bare skin, as any covering, however thin it may be, will retard the influence of the light rays. Any surrounding surface not requiring the influence of light should be covered with dark cloth. After adjusting the lamp so that the rays will fall directly upon the surface to be treated, the current is increased to reach the degree of light desired, and each treatment timed to meet the requirements of individual

cases. Blondes are more susceptible to the influence of light than brunettes, owing to the lack of pigment in their skin, and it is well to explain to all new patients that erythema will be a possible consequence. The first few applications should, therefore, be of short duration; from two to five minutes will generally produce a slight reddening of the skin. As each patient progresses the duration of the seance may be prolonged until from fifteen to thirty minutes is required to produce the desired effect; there will be sufficient pigment matter formed to protect the tissues and prevent injury. For all general purposes the full unmodified rays of light are employed, as we thus receive the derivative effect of all the rays, if we wish to eliminate the chemical rays and increase the thermic rays the red screen is used and likewise the blue screen is used to somewhat eliminate the thermic rays, and increase the chemical rays.

The principal and most active qualities of light as a therapeutic agent may be found in its influence upon the blood and circulation, its tonic and vitalizing powers and its destruction of many pathogenic germs. If we would resume the diseased conditions in which this form of treatment is applicable we would appreciate the large field of usefulness this agent is destined to fill in the treatment of disease. All superficial diseases are more rapidly influenced, owing to the direct action of this agent. Deep seated disease, often, can only be influenced indirectly, or by reflex action. Pain and nerve pressure are relieved by inducing activity of the circulation, through the congested areas; therefore, all superficial inflammation and suppuration are greatly benefited. This has been demonstrated through the benefits and cures derived in longstanding cases of acne vulgaris, scrofulous, abscesses, and ulcerating lupus. By exposing these diseases to the influence of the powerful ultra-violet rays, as close as possible to diseased surface, for a definite period, we will observe that the influence of this agent will diminish, and in time, remove the inflammatory process, by improving the circulation and destroying the suppurating process, through its chemical action and bacteriacidal power.

Axmann states that fresh and suppurating wounds behave under the influence of the actinic rays as if they had been bathed with a solution of peroxide of hydrogen. It will thus be seen what a large field of usefulness light has in the treatment of cutaneous and all ulcerative affections alone, although its usefulness is not limited to the skin, as the influence of light upon the deeper structures is almost unlimited. Its power to relieve high blood pressure exercises its potency in a variety of painful affections,—rheumatism, neuralgia, neuritis, pleurisy and allied diseases are treated with excellent results.

While superficial affections depend upon the direct rays of light for their therapeutic value, the deeply seated organs are influenced, in a remote way, through terminal nerve action, and the influence of the blood and the circulation. If we produce an erythema of the entire surface of the body, as we would by exposing the entire body to a sun, electric light, or full hot water bath, we are capable of drawing to the cutaneous surface one-half to two-thirds of all the blood in the body, we are, therefore, temporarily removing the blood supply and pressure from the internal organs, which will readily be seen to have its influence in eliminating inflammatory conditions of the liver, spleen, kidneys, lungs and other internal organs. This may be done more rapidly by the hot water bath, but the continued influence of the light and heat received by the electric light or sun bath treatments are most lasting in their results; to illustrate, we may relax a convulsion caused by a congested spine or brain more rapidly by placing the patient in a hot water bath, as this is an acute affection, but in an old, chronic affection of these organs, permanent relief could only be obtained by long exposure, resulting in actinic or solar erythema. On the other hand, we find certain surfaces of the skin are related to the blood supply of certain internal organs,

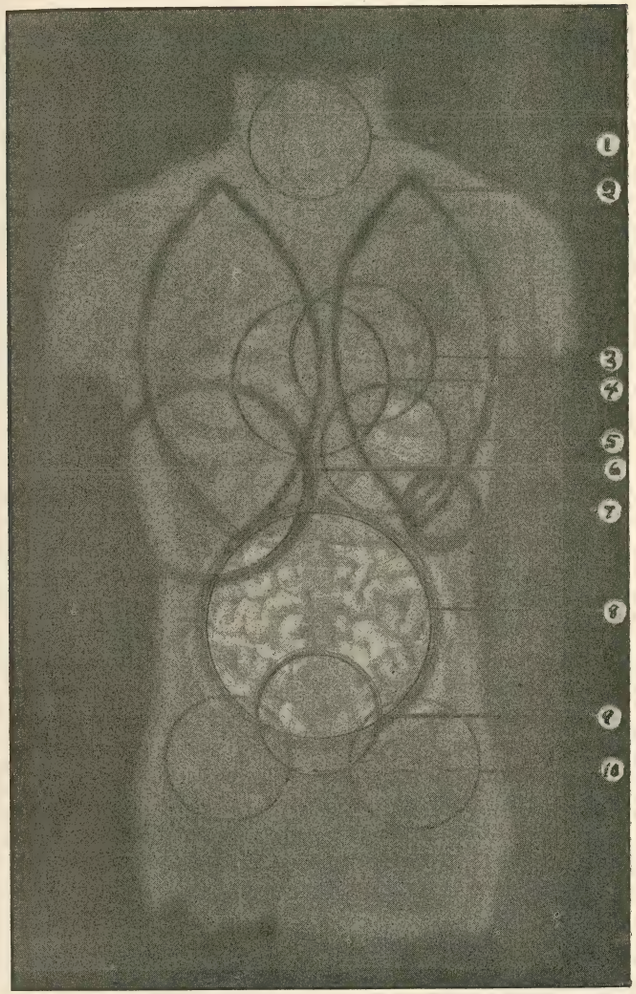
and by applying light to these surfaces, we influence more directly the internal organs; in much the same way as the manipulation of the nerve centers in the spinal column bears its influence in treating internal organs by Osteopathy and Vibratory massage. For instance, the skin covering the loins is, collaterally related to the kidneys, through the renal branches of the lumbar arteries; therefore, by producing hyperemia of the skin, at this surface, we are inducing a collateral anaemia and relieving blood pressure upon the kidneys. The entire surface of the body is likewise collaterally

EXPLANATION OF ANTERIOR VIEW.

This illustration, showing the anterior view of the body, points out the cutaneous areas when the application of light is utilized to have its most direct influence upon the internal organs. The line or circle outlining and incorporating these areas is the surface in which the rays from the therapeutic lamp should exert their greatest therapeutic value, (1) Larynx and Pharynx, (2) The Lungs, (3) The Heart, (4) The Stomach, (6) The Liver, (7) The Spleen, (8) The Intestines and Abdominal Viscera, (9) Bladder, Uterus and Ovaries, (10) Genito-Urinary Organs

related to different organs, and the relationship between the integument and internal organs is of the greatest importance in the therapeutics of light and are the land-marks used by the light therapeutist in the treatment of disease.

As a rule, the skin covering the internal organs is reflexly related to the organs it covers, both anterially and posterially, although there are many exceptions to this rule. To illustrate: the soles of the feet have a reflex action upon the brain, genito-urinary organs and bowels, while the dorsal area of the feet has a reaction upon the pelvic organs, brain and intestines, and the



ANTERIOR LIGHT AREAS.

light area of the hands is directly related to the brain and lungs. This has been demonstrated by removing headache; also, congestion of the brain and lungs by applying hot applications to the hands and feet, by hot water baths, etc.

EXPLANATION OF POSTERIOR VIEW.

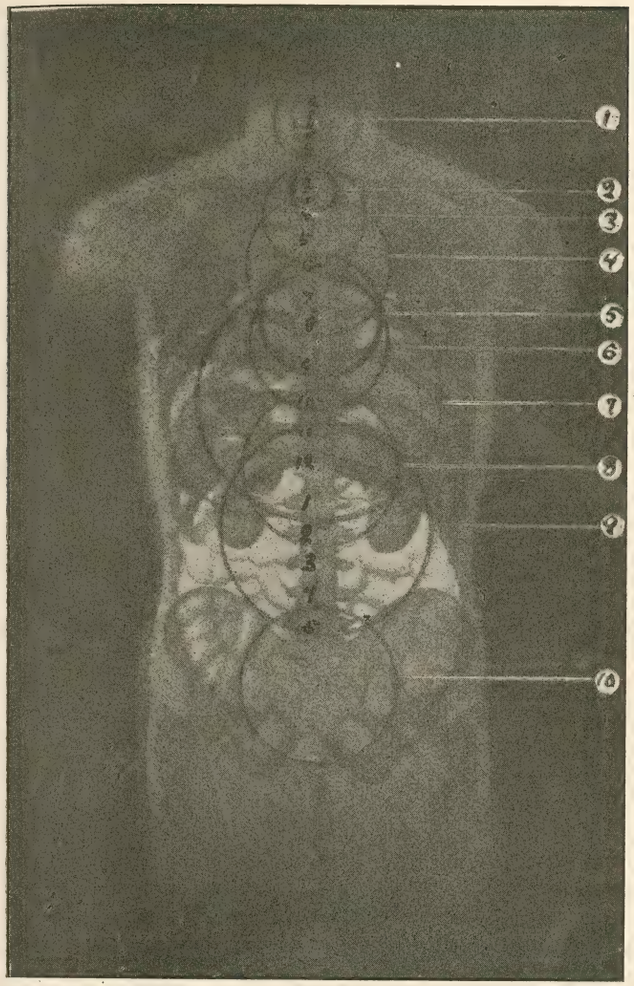
This illustration gives the cutaneous areas and spinal centers through which the application of light exerts its greatest therapeutic influence, through the nerve centers.

(1) The Brain, Larynx and Pharynx, (2 and 3) The Heart, (4) The Lungs, (5) The Stomach, (6) The Liver, (7) The Spleen, (8) The Intestines and Abdominal Viscera, (9) The Bladder, Uterus and Ovaries, (10) Genito-Urinary Organs.

TECHNIQUE OF LIGHT THERAPEUTICS.

By referring to the accompanying translucent illustrations, it will be seen where the application of light, by the use of the therapeutic lamp, is applied to establish its direct influence, and collateral reflex action through the circulatory and nervous systems. The skin and spinal centers are used as a means of conveying therapeutic impressions through the direct and peripheral nerves, and controlling circulation by its influence upon the blood vessels. Every area of the cutaneous surface, and each nerve center in the spinal column, is in special reflex relation with some internal organ. The following are the most important of these reflex relationships.

The circumscribed areas in these illustrations are the ones associated reflexly with the deep seated organs, and also illustrate the focusing surface, which the light could cover by its reflection of the direct rays; the intensity of the light may be either increased or decreased as desired, either by moving the reflector to



POSTERIOR LIGHT AREAS.

or from the surface, or the more economical way of regulating the current by the rheostat.

In making application to the chest, there are two particular precautions which should be observed to protect the eyes from the powerful rays, by the use of colored glasses, or a dark cloth shield around them, and in very feeble patients, where the heart is affected, the entire surface of the heart should be covered with a damp, dark cloth, or other protection.

The application of light to the chest and abdominal surface is indispensable in a large number of diseases. All forms of pain will find relief; intercostal neuralgia, pleurisy, acute bronchitis and pneumonia will be greatly benefited by these applications, which should be of short duration but rather intense in character. In all chronic diseases the treatment should be prolonged for a greater period, with a view of producing erythema. What is applicable to the chest is also useful in treating the epigastric, hepatic, and lower abdominal regions. Application of light varying from five to fifteen minutes will relieve pain and inflammation in the stomach, liver and bowels and by maintaining a continued hyperemia of the skin is one of the most beneficial factors in the treatment of all chronic affections of the diseased thoracic and abdominal organs.

Application of light to the spine, and spinal centers acts in both a direct and indirect way. It will bring relief to diseases within the cord or vertebrae, neuritis or Pott's disease or reflex pains from the internal organs. Gastritis, gall bladder disease, and the so-called preferred pains of the other viscera. A continued hyperemia of the areas given in the accompanying illustrations is one of the most effectual means of pain inhibition in the therapeutic field. These special organs can be specifically treated by the following brief technique:

The Brain—The skin covering the entire scalp and face, and the back of neck, also the feet and hands are the areas used in treating this organ.

The Larynx and Pharynx are reflexly influenced by the skin in the front and back of the neck, and upper cervical nerve centers in the spinal column.

The Lungs—The skin in front and back of these organs and the vertebral area from the first to the sixth dorsal vertebrae, and also the skin on the inner surface of the thighs have special reflex relation with the lungs.

The Heart—The skin and area of the chest wall covering the heart in front and behind, and also the first, second and third dorsal vertebrae are the centers influencing the heart.

The Liver—The integument lying over the organ and the area from the seventh to the tenth dorsal vertebrae.

The Stomach—Direct application of light to the skin covering the stomach and also the vaso-motor centers from the sixth to the ninth of the dorsal vertebrae.

The Spleen—The skin on the left side of the lower chest, and the nerve centers from the third to the eighth dorsal vertebrae are associated with this organ.

The Intestines—Are reflexly related to the skin which covers them and the vertebral area from the seventh dorsal to the first lumbar vertebrae.

The Kidneys—The skin at the lower part of the sternum and the area involved from the tenth dorsal to the second lumbar vertebrae.

Bladder Uterus and Ovaries—The skin covering these organs and also the groins is directly related to the above organs in the female, and also to the prostate testis and epidermis of the male; their spinal centers are from the eleventh dorsal to the fifth lumbar vertebrae, inclusive.

REGIONAL APPLICATION OF LIGHT.

Regional application of light and heat can be brought in direct contact to every given area by means of the incandescent or arc lamp, and these are the means used when a greater degree of intensity is desired.

In treating local or internal diseases by reflex action, after adjusting the lamp so the parallel rays will fall directly upon the diseased surface, the intensity of the light may be regulated, either by regulating the current, or the distance at which the lamp is placed from the patient. When a very small area is desired to be treated, such as lupus or small skin lesions, the lamp can also be focused in such a way as to concentrate the rays to a very small area or diameter. The first indication that we are receiving the benefits of the treatment is a very decided sensation of heat; this is followed, in a few minutes, by a reddening of the skin, and the beginning of perspiration, which indicates that the full benefit of the application has been secured. If the patient complains of the intense heat, the surface may be sponged with tepid water, alcohol or other liquids.

Solar erythema or light burn is a condition which occurs after continued use of the light treatments, and is due to the actinic rays of light, and denotes a complete dilatation of the cutaneous blood vessels; no great harm can be done with this treatment, as with X-ray, because the effect is only superficial. Continued treatments produce a discoloration of the pigmentary layer of the skin, which is analogous to sunburn and the tanning process from the sun's rays. This extreme light force is a condition frequently desired in the treatment of many deep seated and obstinate cutaneous diseases; in gall stones, sclerosis of the liver and chronic gastric catarrh, appendicitis, all internal congestion and painful joint affections, sciatica, chronic acne, eczema, psoriasis, etc.

APPLICATION OF LIGHT TO NERVE TRUNKS.

This is one of the most effectual means of obtunding pain in all diseases involving the sciatic and other nerve trunks; it is, therefore, indispensable in the treatment of sciatic rheumatism, neuritis, locomotor ataxia, etc.

APPLICATION OF LIGHT TO JOINTS.

This affords a very potent means of treating joint affections, whether due to injury or disease; sprained ankle, rheumatic joint affections, articular rheumatism, etc., yield very readily to this form of treatment.

APPLICATION OF LIGHT TO THE EPIGASTRIC REGION.

Will prove valuable in the treatment of all chronic diseases of the stomach, gastralgia, dyspepsia, chronic gastric catarrh, duodenitis, cholangitis, etc. To produce marked results in these diseases, the epigastrum should be kept in a continued state of hyperemia of the skin.

APPLICATION OF LIGHT TO THE HEPATIC REGION.

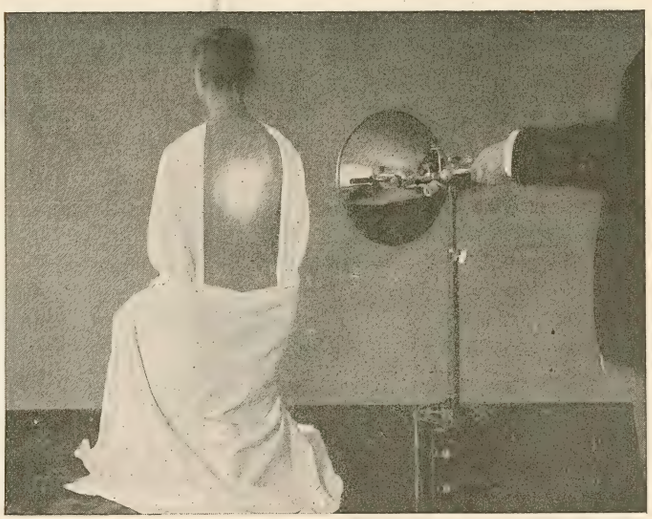
This is one of the treatments par excellence in many long standing diseases of the liver; the treatment should be continued until a permanent hyperemia exists, covering the entire surface of the liver, which will render valuable service in the treatment of gall stone disease, chronic congestion, jaundice, and cirrhosis of the organ. It creates activity of the portal circulation and induces the flow of bile.

APPLICATION OF LIGHT TO THE ABDOMINAL REGION.

The application of light to this region greatly influences nearly all diseases occurring within the abdominal cavity; relieves pain in intestinal colic, chronic colitis, chronic appendicitis, visceral neuralgia, and all inflammatory and non-inflammatory and painful conditions.

APPLICATION OF LIGHT TO THE RENAL REGIONS.

By applying light directly to the renal region in the back, we derive a most direct influence upon the kidneys, and increase their activity and eliminative functions; this is, also, a very effective therapeutic measure in the treatment of all acute and chronic diseases of these organs. Their attachment is so closely related to the external surface and spinal centers that the most active influence is derived from light in this region.



APPLICATION OF LIGHT TO SPINAL AREAS.

APPLICATION OF LIGHT TO THE LOINS.

It is surprising to note the rapidity in which light treatments will remove "kinks" in the back; backache, and lumbago will often disappear like magic with this treatment. Its reflex action, through the nerve trunks in this location, has a wide field of usefulness in the treatment of a variety of diseases, incorporating nearly all the abdominal and pelvic organs, and also diseases within the spinal cord; spinal cirrhosis, chronic myelitis,

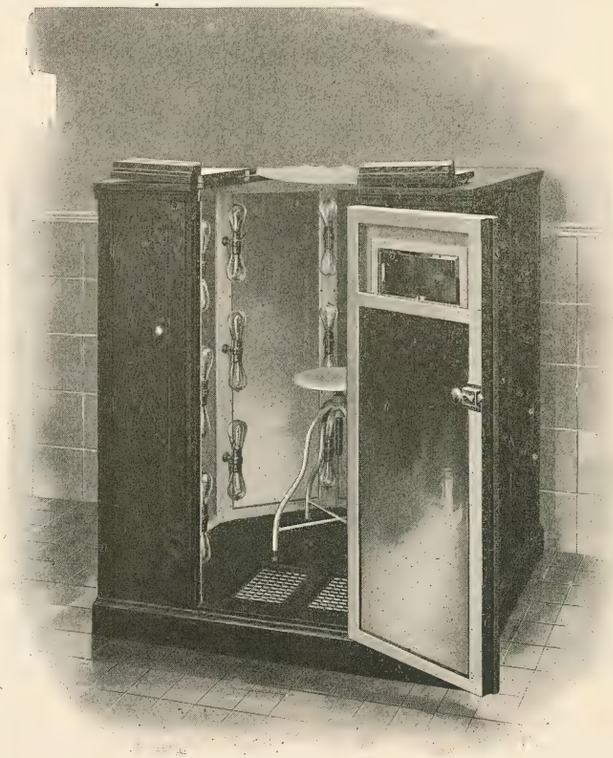
etc. It is also the region in which the greatest results are obtained in genito-urinary diseases, neuralgia, acute inflammation of the bladder; also, neurasthenia in both sexes, amenorrhea, ovarian neuralgia, salpingitis, chronic metritis, and dysmenorrhoea and other pelvic and abdominal pains are generally relieved by this treatment.

GENERAL LIGHT TREATMENT.

ELECTRIC LIGHT BATH.

Of all the different forms of photo and thermotheraphy, which have been devised, the electric light bath has the greatest field of usefulness, and no physician conducting an office practice or sanatarium armamentorium would be complete without an electric light bath cabinet, for this is the one means of giving the entire body the benefit of light and heat, in its most potent, convenient and beneficial form. This bath was introduced by Dr. Kellogg, of the Battle Creek Sanitarium, about twenty years ago, and its general approval and scope of usefulness is apparently increasing every day, while extensive investigations have been conducted to obtain the physiologic effects of the procedure. This bath, as a rule, is not conducted with a view of treating any special organ, but for its general tonic and eliminative influence; in this, it has no superior. Its stimulative action upon the skin is nearly double that of the Turkish or Russian bath, as free perspiration will take place in three and one-half minutes, at a temperature of 80 degrees F., while it requires about six minutes in the Turkish and Russian bath at a temperature from 102 degrees F., to 128 degrees F. Another advantage over other baths is that the heat may be retained at any desired degree, by simply controlling the lights. The greatest value of this treatment is the easy way in which it induces perspiration as an eliminative process. Brain workers and confined office attendants are the ones who most need the best influences derived from both heat and light, as exemplified in the electric light bath. The influence of this treatment in the elimination of marked toxic accumulations far excels any other

means, and will not only be found useful as a hygienic luxury, but a therapeutic necessity in treating many conditions. It is by far the best eliminative means of removing toxic influences from alcohol and the drug habit, and the toxemia of chronic dyspepsia, malarial

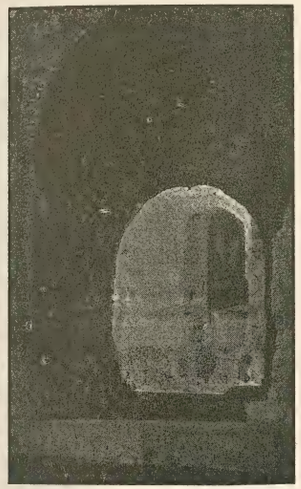


ELECTRIC LIGHT BATH CABINET.

cachexia, rheumatism, syphilis and other diseases of a kindred nature; while the light, combined with heat, reinforces its influence upon cell growth, and establishes new activity in the blood and circulatory system. It is the most potent therapeutic agent known to promote activity of the skin in the elimination of waste products.

Hydrotherapeutics

Other than light baths, constitute one of the most ancient of therapeutic measures, and the healing properties of water could be traced back to the most remote ages of antiquity. The ancient Romans not only utilized baths as a panacea for all ills, but as a means of invigorating and strengthening their armies, and wherever their subjects were stationed, elaborate bath accommodations were installed. The gigantic magnitude of these establishments is well illustrated in the ruins of the baths of Caracella, which are still in existence. Similar baths were located in its most distant possessions.



RUINS OF THE BATHS OF CARACELLA

In the ancient city of Bath, England, there was a Roman bath establishment restored only three years ago, A. D. 1909, as it existed during the time of Caesar. The baths of Rome and Roman possessions finally lost their significance, and for many centuries the art of bathing, as formerly practiced, fell out of existence; and only within the last sixty years has the therapeutic value of baths evolved into a scientific system of hydrotherapy.

The scientific technique of hydrotherapy, as it is practiced today, supplemented by the use of all modern

bath apparatus, places hydrotherapy among the leading healing adjuncts to medicine. A knowledge of the value of hydrotherapy and balneotherapy is indispensable to any physician; this is especially true where a fully equipped office or a small sanitarium is conducted. A public bath establishment is a remunerative proposition in any locality, with a population from two thousand upwards, and will not only reimburse the physician's income several hundred dollars a year, from the baths alone, but will be the means of having your bath patrons become acquainted with your other scientific therapeutic apparatus, and establishing your medical and surgical business. With this object in view your bath apartments should be open to the general public, other than invalids; this can be certain days in the week, or certain hours of the day, as preferred, depending upon the extent of patronage. Most physicians, who are conducting these establishments with limited space, have ladies call at certain hours or days, and gentlemen at other hours or days; for instance, the ladies' days would be Monday, Wednesday and Friday, while the gentlemen's days would be Tuesday, Thursday and Saturday. On the other hand ladies can visit your institution in the forenoon, and the gentlemen in the afternoons and evenings. Of course this could be arranged to suit the demands of individual cases, etc.

You will require the services of both a male and female attendant, and it is the physician's duty to instruct these attendants in the technique of giving the different baths; massage, alcohol rubbing, etc.

It is advisable when establishing a bath institution to incorporate as many different forms of baths as possible and establish a schedule of prices ranging from 25 cents up. The following prices are those generally adopted at bath establishments:

Plain tub bath, hot or cold, without attendant..... 25c
Plain tub bath, hot or cold, with attendant, and alcohol rub..... 50c
Turkish bath, without attendant..... 50c

Turkish bath, with attendant, and alcohol rub..... 75c
Russian bath, without attendant..... 50c
Russian bath, with attendant, and alcohol rub.... 75c
Super-heated air bath, (Betz bath), with alcohol rub $1.00
Electric light bath.....$1.50

Of course these prices could be changed to suit individual requirements.

The physician who has not given this phase of the subject special attention, may think it an exaggeration when I state that the patronage from baths alone will be the means of increasing his yearly income from one to two thousand dollars a year, even with limited equipments, and at the same time, will be the means of reinforcing his professional business to fully this amount; of course your success will depend, somewhat, upon the amount of energy expended in making a bath institution popular. Nearly all physicians, conducting bath establishments in connection with their practice, issue bath tickets, from which they make a small reduction where a course of baths is given. To illustrate the common, hot, or cold baths, with alcohol rub, which are listed at fifty cents for a single bath, a bath ticket is issued, giving a course of twelve baths for five dollars. Bath attendants usually expect to make a fair salary from the "tips" they receive, and they can conduct the baths for you on either a salary or commission.

Baths have been defined as the process of complete or partial immersion of the body, in some element or substance other than that to which it is normally accustomed; thus we may have hot or cold water baths, hot air, vapor, or medicated vapor baths, sand, mud or sun baths, electric, or electric light baths, etc. These baths may be given for pleasure and cleanliness, as surf bathing in the ocean, or for therapeutic purposes, for their effects upon elimination, stimulation, metabolism, etc. The temperature of baths varies, generally, from forty to four hundred degrees F., depending upon the sub-

stance used and the method of application. The following temperatures is the standard in general use:

Cold baths	45 to 65	degrees	F.
Cool baths	65 " 75	"	F.
Tepid baths	85 " 95	"	F.
Warm baths	95 " 100	"	F.
Hot baths	100 " 110	"	F.
Very hot baths	110 " 120	"	F.
Vapor baths	100 " 140	"	F.
Hot air baths	110 " 180	"	F.
Hot air blanket baths	200 " 400	"	F.

BATH THERMOMETER.

To determine the temperature of baths the physician should provide himself with a bath thermometer. This is a very important instrument, especially when you are keeping a record of bath patients.

THE EFFECTS OF HOT, COLD, AND MEDICATED BATHS.

It is the universal opinion that heat and cold, applied to the external surfaces of the body, will be conveyed to, or abstracted from, the deeper tissues; while this is true to a certain extent, the process of penetration, or depletion of heat or cold is very much overestimated. Various tests have been made by inserting a thermometer in the orifices of the body, the mouth, vagina and rectum, and the most accurate observers have noted only a fall of temperature in typhoid fever from two to four degrees, by the use of Brand baths and their modifications, while a rise of temperature to an equal number of degrees has been observed by the use of hot baths in cholera. One of the most important objects of hot and cold baths is the regulation of circulation, when we consider the fact that the skin is capable of retaining one-half of the blood in the body; and by immersing the body in either superheated water, air or vapor will relieve blood pressure upon the internal organs. Every physician is familiar with this effect in convulsions of children and even adults. What is true in relieving the blood pressure in the cerebro-spinal axis, is also true with the portal system and other congested areas.

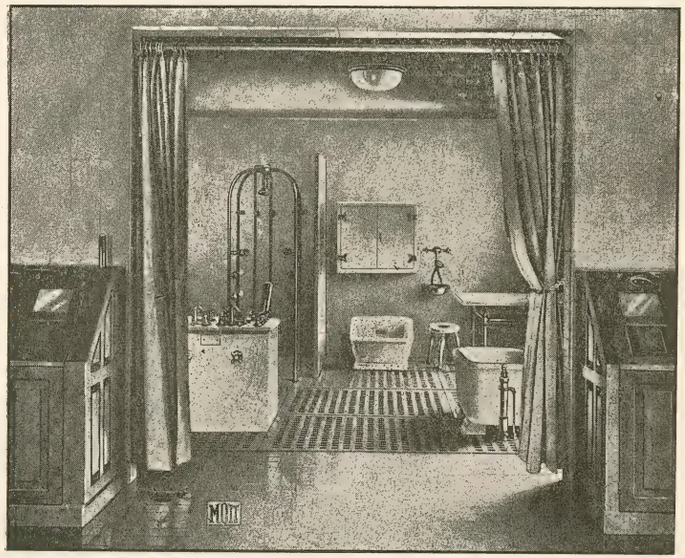
Therefore, the physician should exercise much judgment in adjusting the temperature for a bath, for certain people, and not aggravate any state of the system that cannot tolerate such an influence. The principal things to note are the conditions of the heart and blood vessels, in either too cold or too hot baths, bearing in mind that cold baths contract the capillaries to some little distance below the skin and drive the blood pressure inward, requiring forced cardiac pressure, while hot baths weaken the cardiac action by drawing the blood from the internal circulatory organs.

From time immemorial, the laity have been taught that the only way to derive benefit from baths is to emigrate their anatomy to some fashionable mineral springs or bath resort, where the waters have an obnoxious odor, or nature has provided water at an increased degree of temperature. This is illustrated by the patronage of the three principal bath resorts in this country. Mt. Clemens, Michigan, is noted the world over for its mineral baths, while the Hot Springs of Arkansas and Virginia are famous for their superheated waters. One great advantage regarding these resorts is that nature has provided surrounding scenery, which is attractive to the invalid, and produces a degree of tranquility to the nervous system, which could not be obtained at home.

The therapeutic value of the minerals contained in bath water is very much overestimated. This has been proven conclusively by many authenticated clinical tests. While there are many medicinal products which are capable of being absorbed by inunction, Dr. R. Winternitz has found it impossible to induce the direct

apy in a scientific manner, the details of which will be found in the following pages:

The fixtures comprise the following: 1. Hydratic control table for regulating the force and temperature of the water. 2. Rose spray or needle bath. 3. Attachment for rain or shower bath. 4. Sheet blanket and towel warmer. 5. Sitz bath with wave spray 6. Tilting basin with mixing valve and shampoo. 7. Perineal douch and stool. 8. Massage table. 9. Full bath tub. 10 and 11, in the foreground are the electric light, Turkish and Russian bath cabinets.



MODERN BATH EQUIPMENT.

TEPID, WARM AND HOT BATHS.

These baths are always found the most agreeable to patients, and the variations of temperature have been classified as follows: Tepid bath from 85 degrees F. to 95 F. Warm baths from 95 degrees F. to 100 degrees F. Hot baths from 100 degrees F. to 110 degrees F.

In giving all baths we must take the normal temperature of the body as a standard, and any deviation from this temperature will have the depressive or stimulating reaction.

Tepid and warm baths are generally employed for simple cleanliness, and as the heat balance is nearly equal, they are often referred to as natural baths, which are used after other bathing processes.

Hot baths have a wide range of usefulness. They consume oxygen and have a marked influence upon metabolism. They eliminate carbon dioxide and increase oxidation.

These baths are used to maintain the normal temperature of the body in depressive diseases, as cholera, and to relieve congestion and inflammation of internal organs by drawing the blood pressure to the surface.

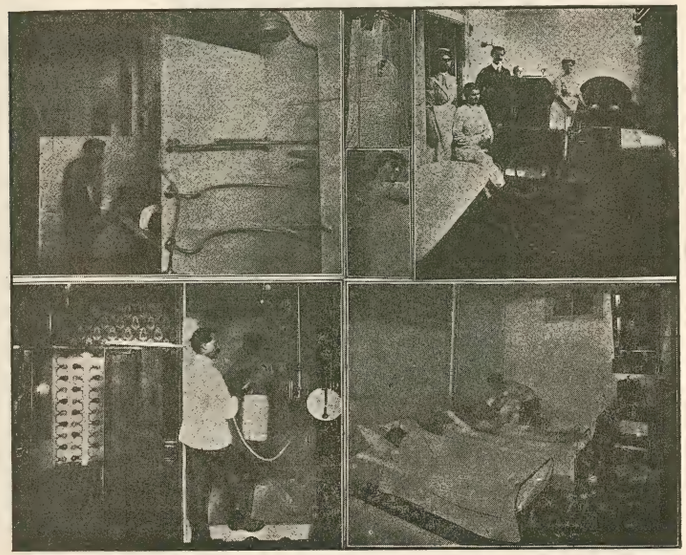
COOL AND COLD BATHS.

One of the seeming paradoxes in hydrotherapy is that hot or cold baths produce nearly the same physiologic results, and if a pathological condition does not react to the hot bath, in many instances, it will to the cold, and vice-versa. The stimulating effect of the thermic irritants, when briefly applied, excites the peripheral sensory nerve terminals, and thus produces stimulation. Cold baths have always been used by athletes as a hardening process and are applied, in present therapeutics, as a process of reducing temperature in fevers.

In the year 1861, Dr. Brand, of Stettin, wrote his first paper on cold baths as a process of reducing the temperature of fevers; although his method of giving baths has many modifications, this process of bathing has always maintained the name of "Brand bath." The technique of giving this bath, as modified by Dr. James Tyson, and used in the treatment of typhoid fever, at the hospital of the University of Pennsylvania, is as follows: The folding or portable bath tub is placed by the bedside of the patient, containing water at a temperature of about 70 degrees F. Compresses of ice

water, or the ice cap is applied to the head, which is allowed to rest upon an inflated rubber cushion during the bath. The patient is gently lifted into the water, and during the immersion, which lasts from ten to fifteen minutes, the patient is constantly rubbed, to maintain good circulation; at the end of the bath, the patient is lifted into bed, where he is rubbed dry, and placed between blankets. At the end of about fifteen minutes, the patient will cease to shiver; the temperature is then taken, and the patient allowed to rest for three hours, when the temperature is again taken, and if it is found to exceed 102.2 degrees F., or above, the bath is repeated. If the temperature is found 102 degrees F., or below, or over 101 degrees F., the bath is repeated in four hours from the last immersion; if below 101 degrees F., or above 100 degrees F., repeat the bath in five hours. If below 100 degrees F., repeat the bath in six hours. If, at any time the temperature should reach 102.2 degrees F., the baths are repeated every three hours, and as many as six of eight baths may be given during twenty-four hours. As many as 175 baths have been given during a course of treatment by Dr. Kinnicutt; while the principal object of the bath is to reduce and control the temperature, other benefits are obtained of equal importance. The intellect becomes clear, and muscular twitching disappears, and there is a general tonic influence upon the nervous, circulatory, and respiratory systems, producing sleep and a general tranquility of the bodily functions. There are several counter indications for cold baths. They should not be employed with too young, or aged patients, with weak vitality. After the cold bath, there is always a reaction; the skin, which was shrunken and pale from the cold, in ten or fifteen minutes takes on a glow of red and warmth, showing that the blood has again occupied the capillaries of the integument. This is the most important feature of the bath; it is through this reaction that all baths derive their greatest therapeutic value, and where patients fail to receive this reaction, cold baths should be duplicated with tepid or

warm baths to develop the reaction power. Careful statistics have been recorded, at different hospitals in this country, relative to the value of baths in typhoid fever. Dr. Gilman Thompson states that the mortality from this disease has been reduced from 16 to 6 per cent in New York hospitals, since the introduction of the Brand bath. Dr. H. P. Loomis reports a reduction of 50 per cent since the introduction of this bath, and, comparing the number of deaths in former years, it is estimated that fully one thousand lives have been saved

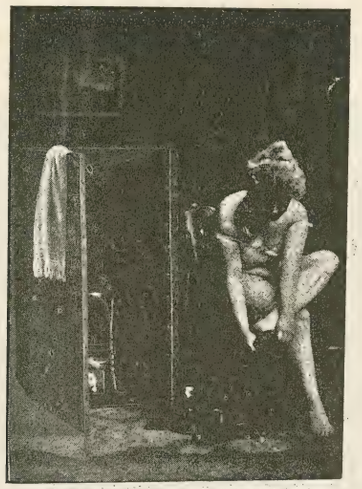


1. Massage Table Shower and Needle Bath.
2. Superheated Air Bath Apparatus.
3. Electric Light Bath Cabinet and Douch Room.
4. Rest and Massage Room.

each year in New York city alone from the use of these baths. There are many other substitutes for the Brand bath, principal of which are the graduated bath, cold pack and ice rubbing. The graduated bath is obtained by placing the patient in a tub of water, at about the normal temperature of the body, which is gradually cooled, until it reaches 80 or 90 degrees F., constantly

rubbing the patient during the bath; while this bath is not as stimulating as the cold bath; it is a good substitute.

The cold or cooling wet pack is another good substitute for the Brand bath, and has the advantage that it can be applied in localities remote from bathing equipments. The bed is covered with oil cloth, and



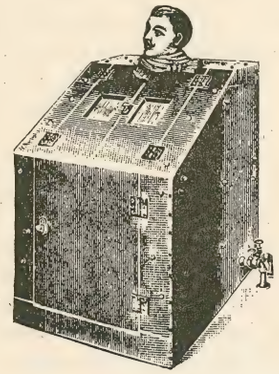
PORTABLE BATH CABINET.

the patient is wrapped in a sheet saturated with water at 70 degrees F., as the sheet warms, a new one is to be applied until, during the course of ten or fifteen minutes, five or six applications have been made; in preference to changing the sheets the crescent bath douch, or the gardener's sprinkling can is used, to keep the surface cold.

The ice rub, or ice ironing, and ice poultices are also often substituted for the Brand bath. The ice rub is produced by a flat piece of ice, wrapped in gauze, with which the body and limbs are thoroughly rubbed. The ice poultice is made by mixing finely pounded pieces of ice with either bran, corn meal or sawdust. These may be used either by immersing the entire body, or applied locally, as poultices.

THE TURKISH BATH.

For the universal use of the Turkish, or superheated air bath, we are, perhaps, indebted to David Urquhart, an English representative at the Court of Constantinople some sixty years ago. Mr. Urquhart had a sunstroke while living in that city, and his recovery was credited to the use of the superheated air baths, which for many years have been in vogue among the people



STATIONARY BATH CABINET.

of Turkey. On his return to England, he expounded the therapeutic value of these treatments for different diseases, with the results that they were promptly adopted in many cities in Europe and America, and today no hospital or sanitarium is considered completely equipped without this valuable curative agent. Its effects are refreshing, cleansing and decidedly stimulating to the circulation, and it is one of our very best means of eliminating toxic influences from our bodies.

The principal object of this bath is to produce profuse perspiration. The original Turkish bath consisted of placing the naked body in a room with dry hot air, at a temperature of 110 degrees F. to 130 degrees F.,

where he is allowed to remain for ten to fifteen minutes, until free perspiration is established. He then enters another room with still higher temperature, from 150 degrees F. to 200 degrees F., for a few minutes until the diaphoretic action is very profuse; he is then placed upon a marble slab, and given a thorough rubbing with the bare hands. This is followed with a soap shampoo with a loofah or Egyptian sponge. Of late years there have been many improvements in the technique of giving these baths, and various bath cabinets have been invented, which produce the same therapeutic results, and are more agreeable to the patient. All these cabinets are arranged so the head may protrude, thus allowing the patient to breathe pure, fresh air, instead of the oppressive atmosphere of the Turkish bath room. The technique of giving these Turkish cabinet baths is as follows: The patient is supplied with a clean sheet, with which to wrap his body, and placed in either a wood or oil cloth cabinet or bath chair (see cut) which can be heated from either a steam or hot air furnace, or an alcohol heater. After adjusting the cabinet about the patient, a towel should be wrapped around the patient's neck to retain the heat in the cabinet, and a cold cloth applied about the head; allow the patient to drink all the water he may desire, which assists in producing the diaphoretic results, and the eliminative effects of the bath. After the patient has remained in the cabinet from fifteen to thirty, or more minutes, he is then placed in the warm full bath, and thoroughly rubbed for a few minutes during this bath; he is now wrapped in a blanket, and retires to the rest room, where the perspiration will continue for about a half hour or hour. During this time the patient will feel inclined to sleep, and the body will resume its normal condition; then the patient is allowed to take a final shower bath, with a soap shampoo, and rub his skin dry with a rough towel, and dress. The foregoing is the general procedure of the Turkish bath, as given at the present time, at most bathing institutions, and is one of the most important procedures in hydrotherapy.

This bath has been largely succeeded, however, by the electric light bath, given in the foregoing chapter; the technique of the bath is just the same in both baths, only electric lights are used to produce the heat. This method is much more effective, and also combines the therapeutic influence of light.

THE RUSSIAN BATH.

This bath is also adopted for its diaphoretic influence, and is conducted the same as the Turkish bath, only using steam instead of hot air for heating the cabinet. The temperature of this bath is considerable lower than the Turkish bath, as the steam renders the higher temperature unbearable. The bather remains in this cabinet ten or twenty minutes, and the same procedure, and after treatment is carried out as with the Turkish bath.

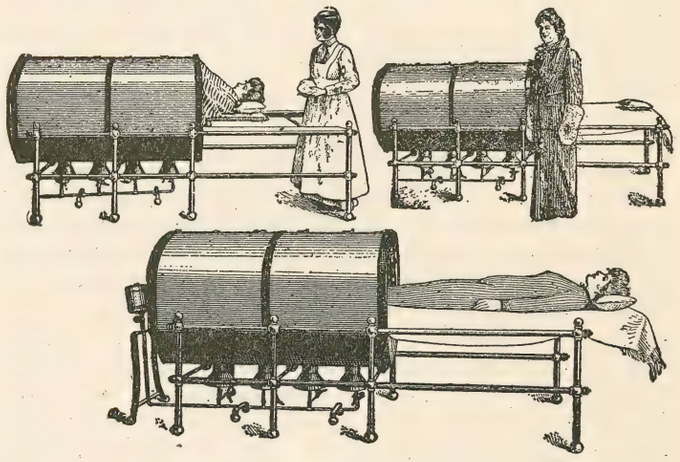
HOT AIR BLANKET BATH.

This bath is also called the superheated air bath, and often referred as to the Betz bath, inasmuch as this gentleman has devised extensive apparatus for conducting the bath. This bath is really a combination of the Turkish and Russian baths. The superheated air is supplied by artificial means and the steam from the body of the bather. To conduct this bath the patient is wrapped in several thicknesses of blankets, and then placed in an "oven," where the temperature is from 200 degrees F., to 400 degrees F., and allowed to remain from twenty minutes to one-half hour, or longer, until free perspiration is established. He is then removed to the rest room, and allowed to steam for ten or twenty minutes, when the steaming blankets are removed, and the body wrapped in dry blankets; after a rest of about one hour, the same after treatment is conducted as in the foregoing baths. This is one of the most effectual baths in hydrotherapy, and is especially adopted in the treatment of inflammatory rheumatism; when the patient is helpless. These baths can also be conducted to

local parts, by the use of special cabinets, in the treatment of inflamed joints to obtund pain, etc.

A WORD OF CAUTION.

Before adopting any of the superheated baths, the patient should be thoroughly examined to ascertain the condition of his heart, and during the bath, the patient should be allowed all the cold water he desires. This increases the diaphoretic effects of the bath. The head should also be kept cool by the application of cold cloths, and the opening through which the head protrudes in the cabinet should also be tightly closed, by



SUPRA HEATED AIR APPARATUS.

wrapping cloths around the neck to prevent the escape of heat or steam.

The question often arises: which cabinet will be the best to install for an office or small sanitarium? My answer would be: the electric light cabinet, by all means, as it is the safest, cleanest and quickest in action of all bath cabinets, and avoids the danger of accidents from breaking pipes, etc. There are also well

founded conclusions that the physical properties of the two agents, light and heat far excel any other process in producing the diaphoretic effects desired, and the penetrating power of the two agents, which are so closely related in physical properties to sunlight, penetrate the deeper structures and stimulate the metabolic processes and bodily activities.

Where another cabinet is added, a combination of heated air or steam is best for all medicated vapor baths, etc.

The Turkish, Russian, Electric light, and the Superheated air Blanket bath are among the most indispensable of bath equipments, in the treatment of many diseases. Their principal therapeutic effect is elimination through the cutaneous surface; they are, therefore, used in the treatment of alcohol and the drug habits, kidney diseases, rheumatism, joint and kindred affections, where the rapid elimination of toxic influence is desired.

ALCOHOL, SALT AND ICE RUB.

The above substances are largely used at bathing institutes, as an adjacent to hydrotherapy. Alcohol is usually employed as a finishing means. Only pure, grain alcohol should be used, either slightly diluted or pure. From two to four ounces will be sufficient for each bath. This is poured into the hand and applied to the different sections of the skin, until the entire body has been thoroughly covered. This method adds tone to the skin, improves circulation, and prevents the patient from taking cold after bathing.

MEDICATED, VAPOR, AND TUB BATHS.

Medicated vapor baths may be taken in the cabinet, by the use of the vapor pan, a special apparatus to supply the medicated vapor, which is placed under the bath stool. The medicated solution is placed in the pan, and the heat underneath produces the vapor; by

medicating any solution, the fumes given off in the steam will produce its medical influence upon the body.

SULPHUR BATHS.

May be obtained by either vapor or in the tub by the following solution, which is known by several names: Sulpholine, liquid sulphur, Sulphol, etc.

℞

Lime ..... 1 oz.
Sulphur ..... 2 oz.
Water ..... 1 qt.

Boil in an enamel or porcelain vessel until dissolved, and add from two to four or more ounces, to thirty

VAPOR PAN AND HEATER.

gallons of bath water for a tub bath, or dilute and use in vapor bath pan. This bath is highly esteemed by many in the treatment of several skin diseases.

Another preparation used in sulphur baths is as follows:

℞

Precipitated sulphur..... 2 oz.

Sodium hyposulphite..... 1 oz.
Dilute sulphuric acid.....½ oz.
Water ..... 1 pt.

The above can be used to 30 gallons of bath water, or used as a vapor in cabinet baths.

Many bath establishments prefer to give sulphur baths with some one of the sulphides, the sulphide of sodium being preferable, owing to its solubility in water; this gives all the characteristic obnoxious aroma found around sulphur springs, and is used when they wish to imitate these fashionable resorts.

PINE NEEDLE BATH.

One ounce of Oleum pini sylvestris, (pine needle oil), is placed in the vapor pan, with several ounces of water, and the patient is steamed for thirty minutes in the bath cabinet. The after treatment is the same as in other vapor baths; this is also useful in the treatment of many skin diseases. Acid, alkaline and other baths may also be given in the same way, but the two mentioned above are by far the most useful.

MUD, LAVA, FANGO, PEAT AND SAND BATHS.

(Antiphlogistic Baths.)

These baths are very highly esteemed in many parts of Europe, and have become quite popular in this country at a little health resort in Northwestern Indiana, (Kramer, Ind.), where has been coined the names of Mudlava, Moor-Baths, etc. In the volcanic district of Italy the lava is used for this purpose under the name of Fango baths; the color of this substance is a grayish brown, and about the consistency of butter. The Fango is applied about the body, at a temperature approximating 110 degrees F., and a gentle massage of the body is given during, and after the pack or bath, which lasts about one-half hour.

In several places in this country a good quality of blue clay, which has been thoroughly ground, is sub-

stituted for Fango, with nearly equal therapeutic results. These baths are especially beneficial in the treatment of stiff and painful joints, arthritis, sub acute rheumatism, sprains, neuritis and all injuries of the ankle, etc.

MUDLAVA BATHS.

SITZ OR HIP BATHS.

These baths are generally given in a tub, designed for the purpose (see bath equipment illustration), and may be either hot or cold, according to the effect desired. During the bath the rest of the body should be wrapped in blankets, and the feet also placed in a pail of warm water. Sitz baths are given for their local effect in the treatment of diseases of the abdominal and pelvic organs. Hot baths divert blood from these organs, and cold baths congest them. The hot Sitz bath has always been an important treatment in many menstrual disorders; amenorrhoea, dysmenorrhoea, neuralgia, and pain within the pelvic and abdominal cavities. Cold baths are given for their tonic effects, in the treatment of paralysis and intestinal atony, impotency and sexual debility of the male; also, hemorrhagic states of the bladder, intestines and uterus, hemorrhoids, etc.

SHOWER AND NEEDLE BATHS.

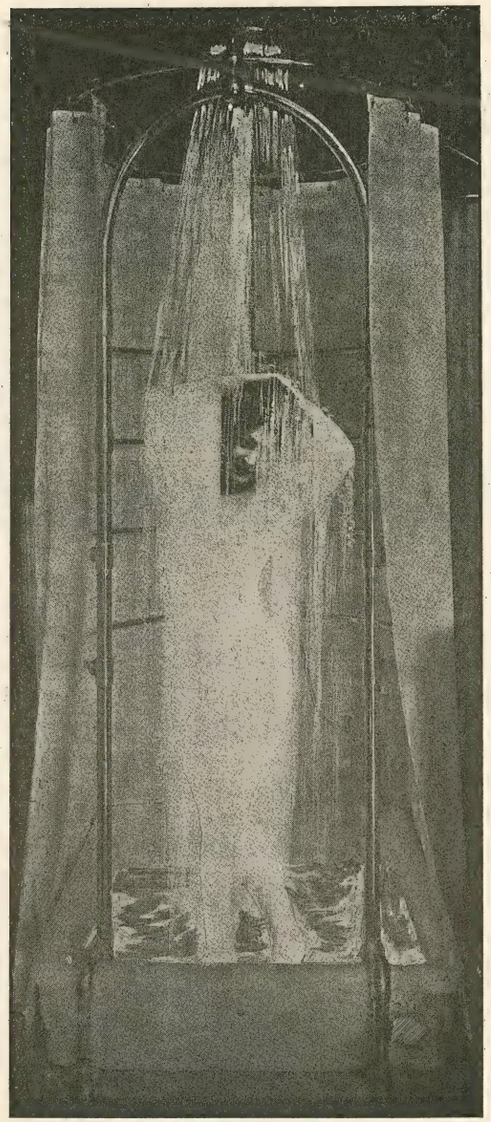
The shower or rain bath was first adopted by the Germans, and is one of the most convenient and cleansing of bathing methods. It has many advantages over the tub bath, inasmuch as it requires only about one-tenth the amount of water, and the time required for bathing is much less. There is also economy in space for apparatus ,and avoids the danger of communicating diseases in public places.

Shower baths are given with a view of imitating rain by a special device which hangs above the head. The spray can be regulated in force or temperature as desired. This bath has of late years been given in connection with the needle bath or douch, which consists of another device enveloping the body on the sides, whereby minute streams of water are thrown upon the body from all sides, giving the body a sensation as though needles were pricking it. The sharp stimulus these small streams produce upon the skin is very invigorating. The needle and shower bath can be operated independently, or hot and cold showers may be given as desired. A very stimulating effect is produced by alternating the hot and cold sprays; these two bath processes are, generally, used as an after bath, or as a cleansing process, following the Electric light, Turkish and other cabinet baths, being the simplest and best way to tone the skin before leaving bathing establishments. The patient will withstand the prevailing temperature without taking cold.

THE HOT AND COLD DOUCHES.

These douches consist of a single stream of water, coming from a nozzle of a ¼ or ½ inch in diameter, at a distance of 8 to 10 feet from the patient, and may be regulated from intense cold to warm, as the treatment demands.

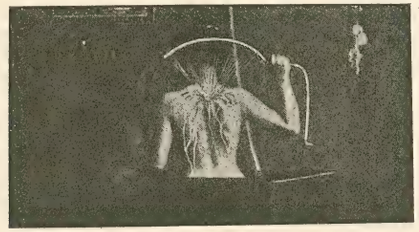
Dr. Charcot was among the first to adopt this hydro-



THE SHOWER BATH.

therapeutic measure, and treated many cases of hysteria with marked benefit, by applying a cold douch to the spine, at a temperature from 40 degrees to 60 degrees F.

Cold douches are also used in chronic constipation and general auto-intoxication, insomnia, anaemia and other conditions, for their tonic and reactive influences. Hot and cold douches are also used, known as the Scotch douch. This douch is produced by two streams

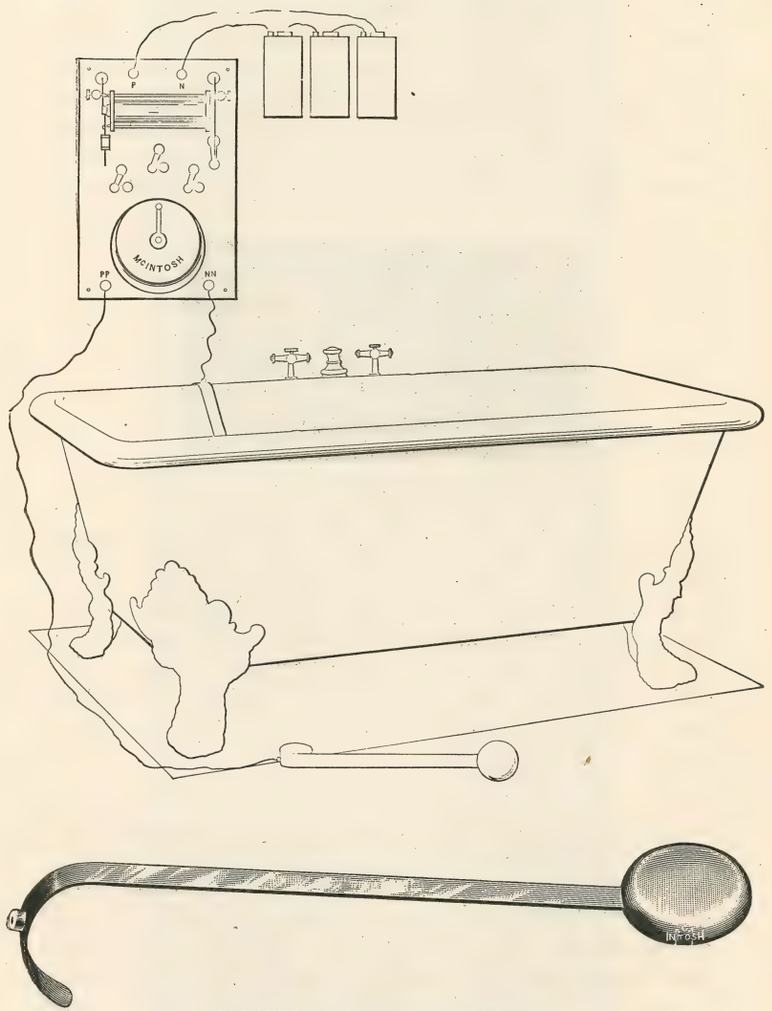


CRESCENT BATH DOUCH.

of water, one hot and the other cold, varying in temperature from 55 degrees F. to 110 degrees F. These douches are applied to the spine and posterior thorax and sides; also to the abdomen and lower extremities, but not to the anterior chest. The alternating of hot and cold is very invigorating, and the tonic effects are used in many forms of paralysis and low forms of vitality.

GALVANIC AND FARADIC TUB BATHS.

These baths are given for their stimulating effect upon the body, and can be utilized for any purpose where these electric currents are indicated in general, and is a most excellent means for supplying the current to the entire body by placing one electrode at the head of the bath tub and the other at the foot or to stimulate the primea viae. The patient may sit in the center of the tub with the water up to or above the waist line



ELECTRIC TUB BATH APPARATUS

and the electrode placed upon each side of the tub, and any style of portable battery may be used or a special apparatus devised as is illustrated in the accompanying diagram.

SALT RUB OR GLOW.

The salt rub or glow, as it is frequently called, is another means of producing a tonic effect to the skin, and is a substitute for sea bathing. This procedure is conducted in a tub of salt water, at a temperature of 104 degrees F. Five pounds of salt to forty gallons of water is the bath solution During the bath the patient is constantly rubbed by the attendant, taking a small handful of salt and rubbing different parts of the body vigorously. After the body has been thoroughly covered by this process, the patient is generally given a final shower bath and rest.

The Ice rub, or ironing, is also used to produce reaction of the skin and other organs. It is used largely in sunstroke. A flat piece of ice or a sack filled with ice is rubbed over the body of its reflex influence.

In conclusion, will say that Hydrotherapy is fast winning the confidence of the medical profession as a remedy, and water, like many other things provided in nature, is one of the natural means of restoring health. Dr. Winternitz, of Vienna, and Dr. Baruch, of New York, have been striving for years to make hydrotherapy the common property of the Medical Profession," and to this end have endeavored to extol its virtues as it justly merits and avert the empirics who are springing up in every direction as water-cure doctors. This is one of the adjuncts of medicine, which belongs to the physician and by adopting Hydrotherapy in connection with an office or Sanitarium practice, your efforts will be doubly rewarded, by the success you will obtain.

Swedish Massage and Osteopathy

The evolution of massage as practiced in Sweden, at the present day, has a long chain of ancestry. The Chinese were known to use certain manipulations three thousand years before the Christian era. The ancient Egyptians and Hindoo priests acquired a knowledge of manipulation, which was supposed to be invented by the Gods; the Persians used several forms of manipulations for different affections, which were followed in practice by the Greeks and Romans.

In the sixteenth century an effort was made to combine massage and movements of the body with medicine for the treatment of disease.

At an early period in the nineteenth century, P. H. Ling, of Sweden, founded the first scientific system of massage, and body movements. His work was succeeded by Dr. Mezgar and arranged into a system, which is now extensively used, not only in Sweden but throughout the entire world. According to Dr. Mezgar's teachings, the scientific application of massage is based upon a thorough knowledge of the anatomy and physiology of the body, and each movement or manipulation is conducted for the specific purpose of producing a normal equilibrium of the functions of the body. All manipulations are passive, and applied to the nude skin, without the patient's assistance or resistance, and arranged systematically, so as to act upon the different tissues and organs of the body.

Dr. Mezgar has divided the massage treatment into four principal manipulations namely: effleurage, frictions, petrissage and tapotement.

Effleurage consists of stroking a given part towards the body or heart; this may be accomplished by using the fingers and thumb, or the palms of one or both hands, or by the thumb or fingers separately.

Frictions are firm, circular, deep-seated movements, applied with the thumb or tips of the fingers, towards the body or heart, generally over a certain group of muscles at a time.

Petrissage, or the kneading of muscles or organs is accomplished with two thumbs, or the thumbs and fingers of both hands for the purpose of raising or loosening the muscles from their attachment, in the treatment of rheumatism or stiffened muscles, etc. This is also conducted by rolling the muscles on the bone, and clapping the muscles to revive new activity.

Tapotement is the tapping or percussing either with the tips of the fingers, where light pressure is desired, as on the surface of the face, or hacking with the ulnar border of the hands; this is used around nerve centers, and upon muscles where heavier pressure is desired. Beating is also practiced with the closed fist over deep muscles and large nerve trunks, as the sciatic.

What constitutes an efficiency of massage is to be determined by the force and frequency of the manipulations, and the length of time during which they are employed. A good manipulator will accomplish more in fifteen minutes than a poor one will in one hour, and it is an art which requires much experience to handle successfully. The directions of most of the Swedish massage movements are the same as vibratory massage, from the extremities to the trunk, from the insertion of a muscle to its origin, and in the direction of the returning currents of the blood, and lympathic system. With this object in view, special attention should be given to the inside surfaces of the extremities in the axillæ and groin, to unload the lymphatics and expel diseased particles and effete matter.

While Swedish massage will always hold a respected position in the manual treatment of disease, physicians

of the occident, as a rule, are, apparently, too indolent to put the system into active practice to any great extent, and until vibratory massage was introduced, in which the technique is very closely allied, massage was very little used in this country; the technique of the different manipulations, as they have been substituted by vibratory massage will be discussed in the succeeding chapter.

Osteopathy was founded by Dr. Andrew Taylor Still, a regular practitioner of medicine and army surgeon, who, nearly half a century ago, conceived the idea that medicine did not incorporate all the benefits of the healing art; that the body is an organic machine, and may become impaired or its parts misplaced, which require adjusting, the same as any other piece of mechanism. After silently carrying on his experimental work in this field, he was finally crowned with success. In the year 1887 he began to teach his sons this new art of healing, and later established the American School of Osteopathy, which is turning out graduates broadcast; working side by side with physicians, and contributing their share of success in relieving the sick and suffering. Osteopathy, like nearly every other new branch of healing art, was very much criticized and ridiculed in its infancy, but physicians and the laity have been compelled to accept the truth, and today osteopathy has passed its experimental stages and holds a respected position as one of the noblest causes which man is called upon to officiate—restoring health.

Osteopathy is like Swedish massage, inasmuch as it is purely a manual treatment for disease; it is also analogous to vibratory massage, as the technique of the treatment often has a striking resemblance. The only difference, in many of the manipulations, is that nature gave the osteopath his instruments to work with—his fingers and arms—while mechanical genius has supplied us with the various forms of vibrators. It will, therefore, be seen that osteopathy has a great advantage over vibratory massage in emergency cases, as the operator

always has his instruments with him, and can always treat his patients, either at the bedside or in emergencies, without the delay of time in securing a vibrator, and oftentimes, the operator cannot be supplied with the motive power, in places where he wishes to treat his patient. This is particularly so in the country, where he does not have access to the electric currents. We, therefore, find that while vibratory massage can be used to excellent advantage in office practice, osteopathy can be applied on all occasions, and at all places. To illustrate: the writer was once making a social call on an old patient, and found the daughter suffering intensely with dysmenorrhœa. Under ordinary circumstances, if I had my medicine case with me, I would have given an analgesic, or might, in this case, have depended upon a hypodermic of morphine; but my only alternative was osteopathic manipulations. I therefore applied sufficient pressure to inhibit the nerve centers of the lumbar region, especially the tender areas of the third, fourth and fifth lumbar centers. I also gave the entire spinal column a general treatment; in less than five minutes the pain had entirely disappeared, and the patient enjoyed a very restful night. This is only one case in hundreds where a knowledge of osteopathy can render the physician better service than drugs, and if the practitioner will acquire a knowledge of osteopathy to the extent of relieving pain alone, his time would be well spent.

To understand many of the fundamental principles of osteopathy, which are so analogous, in many ways, to the technique given in vibratory massage, the reader is referred to the accompanying chapter for the local areas and land marks, which are incorporated largely by osteopathic manipulations.

Osteopathy, Swedish and vibratory massage, and all drugless methods of treatment, are directed in the same course; to stimulate or inhibit through reflex action, the centers controlling the functions and organs of the body, thus assisting nature in dispelling disease, and to obtain and maintain a healthy equilibrium.

Dr. Goetz mantains: that when all obstructions to the natural direction of life forming and healing energies that are resident within the body are removed, and all chemical changes preparatory to nutrition are corrected, as they may be without medicine, then nature swiftly and surely regains her normal equilibrium of health and strength. It will, therefore, be seen that Swedish massage and osteopathy have many things in common with the technique of vibratory massage; the only difference being the mode of application, the former being applied by the hands and the latter with an instrument or vibrator. It would be only a repetition to discuss the technique of each, separately. This is particularly so with many of the treatments of the spinal column. We may obtund pain in certain localities by desensitizing the nerve force, either by direct pressure or manipulation with the cushioned ends of the fingers or by the "Tapotement" of massage, or the machanical vibrator; the effect will be the same.

Of course there are several features favoring osteopathy, in the treatment of many diseases, which osteopathy will reach, where vibratory massage cannot be utilized. This is particularly so in luxations of the bones and muscles, ligaments, etc., and their inpingment of nerves.

Most of the diseases of the body are reached through the nerves of the spinal column. These nerves control motion, sensation, nutrition, and other functions of the body; therefore, manipulation of the spinal nerves bears the same relation to the osteopath and vibratory therapeutist as the keyboard of a piano does to a pianist, the mechanism proper is on the inside of the piano, but is controlled from the keyboard. Likewise, many diseases of the body can be controlled from the spinal nerve centers by manipulating with the cushioned tips of the fingers or a vibrator, and inasmuch as Swedish massage, osteopath and vibratory massage are so closely related, we will discuss the technique more thoroughly in the succeeding chapters.

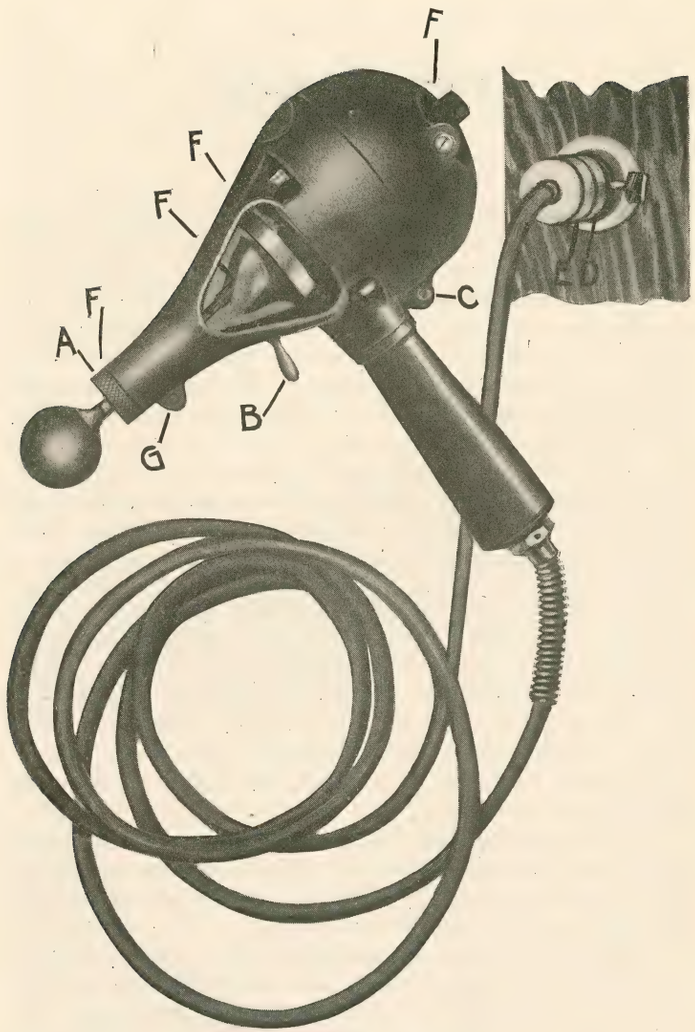
Vibrotherapy

Physicians, as a rule, never take very kindly to the manual methods of massage, which are outlined in the foregoing chapters. One possible reason may be that it involves too much labor, but when some mechanical genius invented the Vibrator about twelve years ago, it was immediately recognized by the medical profession, and received as hearty welcome from the physicians as the sulky plow did from the farmer: "It's the easy way."

One of the most important things to be considered in adopting Vibratory therapeutics in office practice is the selection of a vibrator. There are many types, with varying degrees of efficiency. Therefore, in selecting a vibrator the following points should be considered: The instrument should have sufficient motive power to deliver long, penetrating strokes, as well as medium and light ones, in order to receive the degree of stimulation or inhibition desired; it should also be capable of changing from a heavy to a light stroke, and vice versa, without any delay. It should have a well localized stroke and also a rotary and lateral stroke, for treating cavities.

A well constructed vibrator should never give any vibration to the operator's hand; by observing these points we really have a scientific instrument with which excellent results can be obtained.

Physicians have long recognized the value of stimulation, and for many years have depended upon electricity and Swedish massage for this purpose. We must give Dr. Still credit, however, for revolutionizing the older methods of massage and placing the subject purely upon a scientific basis, by complying with the anatomical structures of the body and physiological

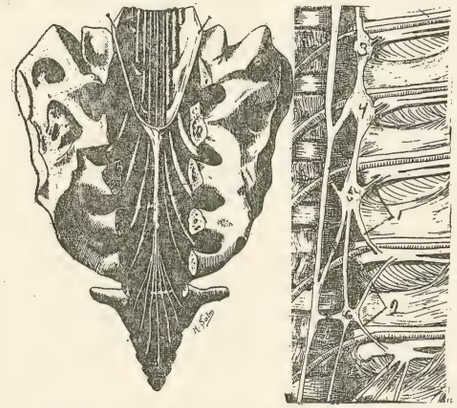


THE SHELTON VIBRATOR.

A—Switch to turn electric current on or off. B—Lever to regulate the length of the stroke. C—Sliding sleeve that holds applicator shaft. D—Separate from E to avoid twisting of cord. E—To be connected with D. D and E form what is called a separable plug. F—Oil holes. Oil once or twice a week for ordinary use.

laws of nature. Vibratory massage is, therefore, a means of conducting many Osteopathic and Swedish massage treatments by a more convenient and less laborious method; the regional technique and vaso motor areas are the same, and the only distinction is the manner of conducting the same influence by different means.

The most important field of operation of both Osteopathy and Vibratory massage is located between the transverse processes of the spinal vertebrae. At



At left distribution of spinal nerves in sacrum and coccyx.
At right (1 and 2) rami communicanties 3, 4, 5, and 6 spinal ganglia.

these points we find the main nerve trunks, conveying and imparting impressions to and from the brain, recognizing two great systems of nerve force in the body; the cerebro-spinal nervous system controlling sensations and motion, and the sympathetic nervous system, superintending the functions of the internal organs, which govern secretions, excretions, circulation, digestion, etc.

Many of the internal organs receive nerves from both systems; by referring to our anatomy we will find a double chain of ganglia of the sympathetic nerves on the anterior surface of the spinal column, extending

from the base of the skull to the end of the coccyx. These ganglia have communicating branches, which connect with the cerebro-spinal nervous system, called rami communicanties. We, therefore, find that treating the nerve centers of the spinal column, as they emerge through the brain and spinal cord, has the power of conveying impulses to and from the periphery. These are called efferent and afferent nerves; the former convey impulses from the brain to the various peripheral organs; these nerves control muscular activity and conduct impulses to the glands and excite secretions. They also control the vaso-motor impulses to the walls of the blood vessels, which regulate the caliber of the blood vessels and circulation of the blood, and also conduct impulses which will stimulate or inhibit the activity of any organ.

The afferent nerves carry the impulses from the peripheral organs to the brain; thus we find the special sense nerves of the eye, ear, nose, mouth and skin, which give rise in the brain to conscious sensations.

We also find special reflex nerves which conduct impulses to the nerve centers, to be reflected out through the efferent nerves to muscles, glands, blood vessels, etc.

In treating diseases by vibratory means we have three degrees of therapeutic application, depending upon the length of the stroke and the amount of pressure used.

DEGREES OF VIBRATION.

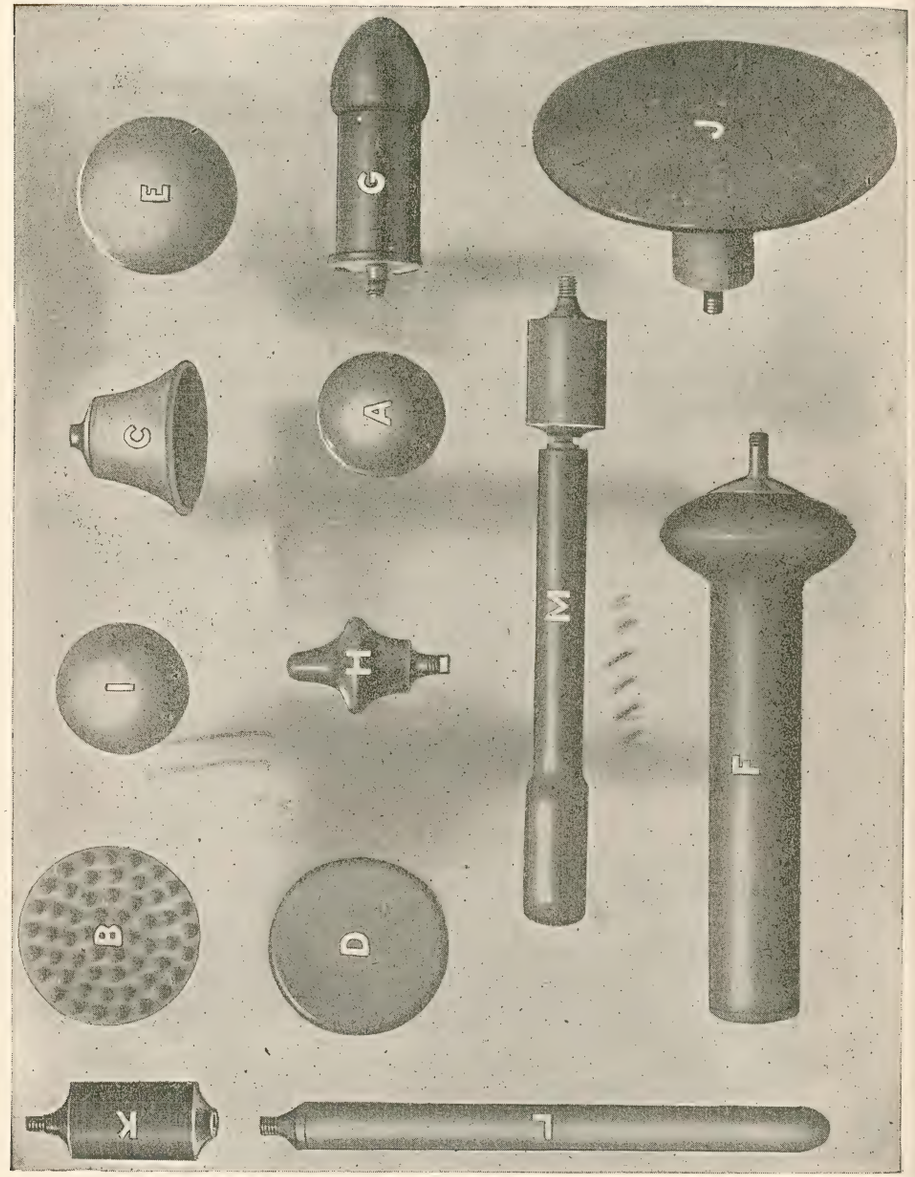
STIMULATION is produced by a short stroke and light pressure.

SEDATION is produced by a medium stroke and pressure, used as a sedative to quiet excitability and promote sleep.

INHIBITION is produced by a long stroke and heavy pressure. This is used to desensitize nerve centers, and will mitigate pain, slow the action of the heart, check

peristaltis, stop hiccough, etc. Always bear in mind that all deep nerve trunks or centers, as a rule, require a long stroke and heavy pressure; while the superficial nerves require only the short strokes and more gentle pressure. In order to obtain the different degrees of strokes and pressure, the operator should see that the vibrator is supplied with a variety of vibratodes or applicators, which can easily be attached to the vibrator, for treating the different areas and cavities of the body. The accompanying cuts illustrate the modern portable vibrator, with all the applicators required for general use.

The selection of a vibratode for a given area, will depend upon the results you expect to obtain; the following is the general rule: A., represents the hard rubber ball applicator, which is used in treating intraspineous spaces when stimulation or inhibition is desired. B., is a soft rubber applicator often referred to as the "brush"; this is used over sensitive areas, as the face, abdomen, etc., where sedation or inhibition is desired. C., is a soft rubber cup applicator; this is used over surfaces of the body for its sedative effect. D., is also used for the same purpose as C. E., is a soft rubber applicator for the eye and ear. F., is a soft rubber vaginal applicator. G., a hard rubber rectal applicator. H., hard rubber external rectal applicator. I., solid soft rubber ball, used same as "A" over sensitive areas. J., large disc for treating the surfaces of the body. K., is a soft rubber attachment for giving an intermediate stroke with other applicators. L., soft rubber rectal or vaginal applicator. M., hard rubber prostatic applicator. O., is a soft rubber intestinal applicator. P., hard rubber cone rectal applicator. Q., hard rubber oval disc applicator. R., hard rubber half-ball applicator. S., soft rubber cup applicator. T., soft rubber disc applicator. U., soft rubber vacuum half-ball applicator. W., large two and one-half inch soft rubber cup applicator.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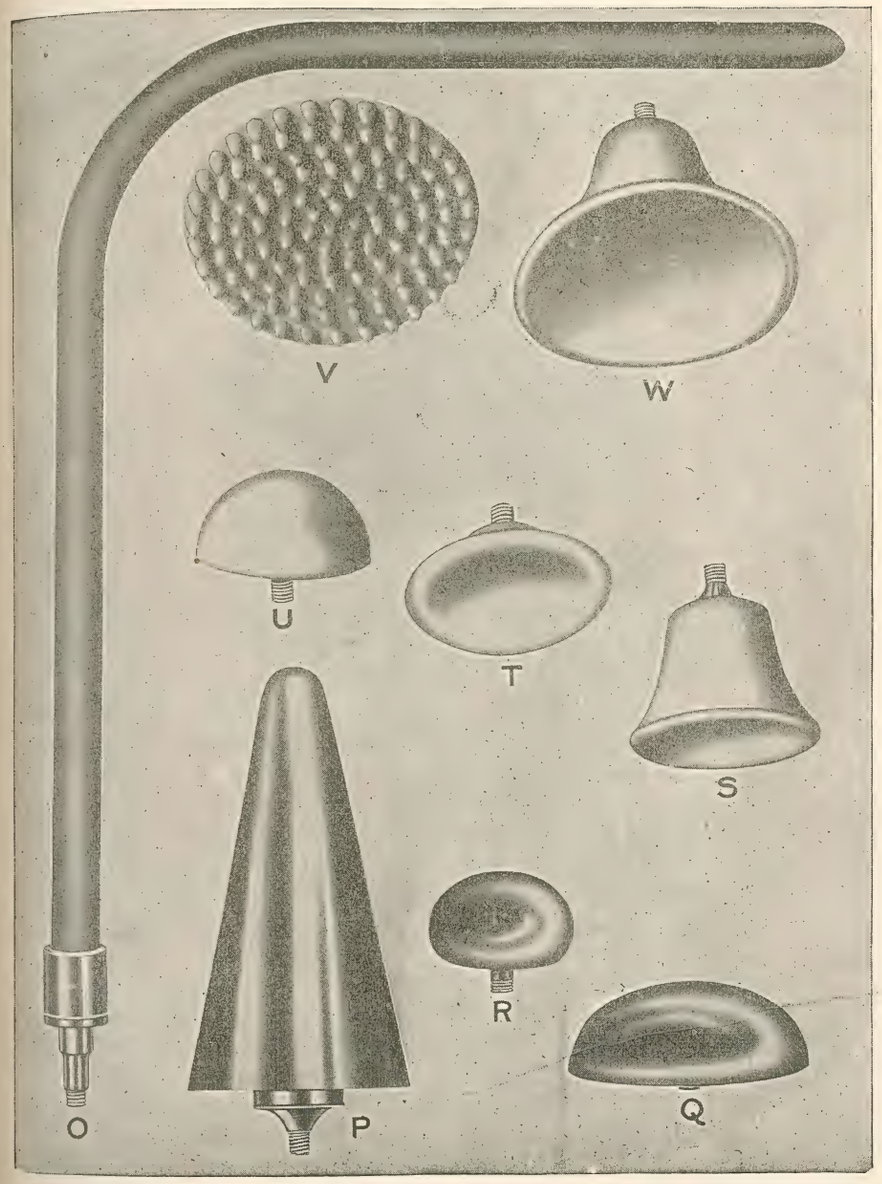
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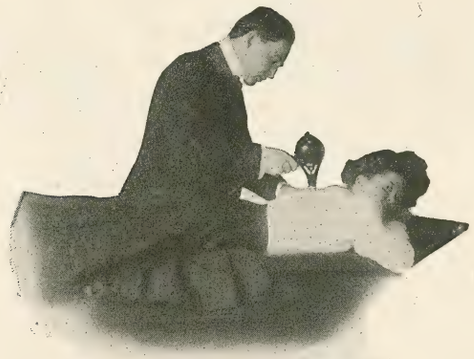
PHYSIOLOGICAL BASIS.

The fundamental principles upon which vibratory massage are based, may be compared somewhat to electricity, although the current waves from electricity



POSITION FOR TREATING THE BACK.

are more rapid in their stimulating effect upon metabolism.

Vibratory massage may be used at a slower and stronger rate without being as disagreeable to the patient. In many instances most pathological conditions are due to stasis, and by stimulating the nerves which control the circulation of the part, and by opening up the lymphatic drainage system, to carry away waste material, we have accomplished by vibratory massage what cannot be accomplished by any other means. As a rule, vibration is best applied as near a nerve center as possible, and by treating the cerebro-spinal nerves as they emerge from the spinal column, better results will be obtained in less than half the time it would take, if we treated the nerves farther out on their course. Nerve centers seem to have a certain amount of intelligence, enough at least, to adjust any abnormal condition within the reach of their jurisdiction. We, therefore, find that vibratory massage has its therapeutic effects in both a direct and indirect way; to illustrate: if we were to treat an inflamed joint, we would recognize that we have a condition of stasis to deal with, and to relieve the congestion or inflammation, our only means would be to treat the lymphatics, that drainage may take place from the joint, and open the avenues of elimination; at the same time, our attention would be called to stimulating the nerve centers, which would produce new nourishment to the part. The joint proper may not be treated at all.

GENERAL AND REGIONAL TECHNIQUE.

Patients who are to be treated by vibratory massage should wear as little clothing as possible, over areas treated. If the patient is a lady she should remove her corset and other outer clothing down to the under vest. A light kimona may be worn, if desired, but the less clothing worn by either man or woman the better. In treating the spinal centers, the patient should be placed upon the table, face downward, and it is often a good plan to place a large pillow under the abdomen; this convexes the spinal rolumn and allows better access to the spinal nerves.

The hard rubber applicator should be used in treating the spinal centers, and when the degree of the desired stroke is decided upon, the applicator should be pressed well in the sides of the inter-spinous openings of the transverse vertebras, on both sides of the spinal column.

Dr. Head was among the first to point out the vaso-motor centers and pain areas of the spinal column, which are illustrated in the accompanying diagram. Although this cut may have the appearanue of a Chinese puzzle, it represents, and outlines the vaso motor centers on the left side, and the visceral afferent floors of the spinal ganglia, or the pain areas, which call for treatment on the right side. To illustrate: If we wish to treat the stomach, the apex of the triangle points to

the word "stomach," on both sides of the spinal column. the left side, the base of the triangle is from the second dorsal to the ninth dorsal inclusive, which locates the vaso motor centers. On the right side, the apex of the triangle points to the word "stomach," and the base of the triangle formed from the sixth to the ninth dorsal inclusive. This locates the points where pain or tenderness can be found by palpation, which requires either Osteopathic or vibratory treatment. These areas are recognized by both the Osteopathic and Vibratory therapeutist; the only difference is in the method by which the treatment is applied. The Osteopath utilizes his fingers, and the physician the vibrator; equal results can be obtained, in many cases, by either means. The Osteopath has the advantage, however, as his instruments (his fingers) are always with him and he does not have to depend upon electric motive force.

In treating the spinal nerve centers, the seventh cervical vertebra, known as vertebra prominens, is always used as a "land mark" to count from. When locating special areas, the left hand can trace the vertebra while the right hand can apply the vibration. In treating the different areas and organs of the body, the following table is the generally accepted technique:

Head and Neck.—For pain in these locations, vibration should be applied from the third cervical to the fifth dorsal, inclusive.

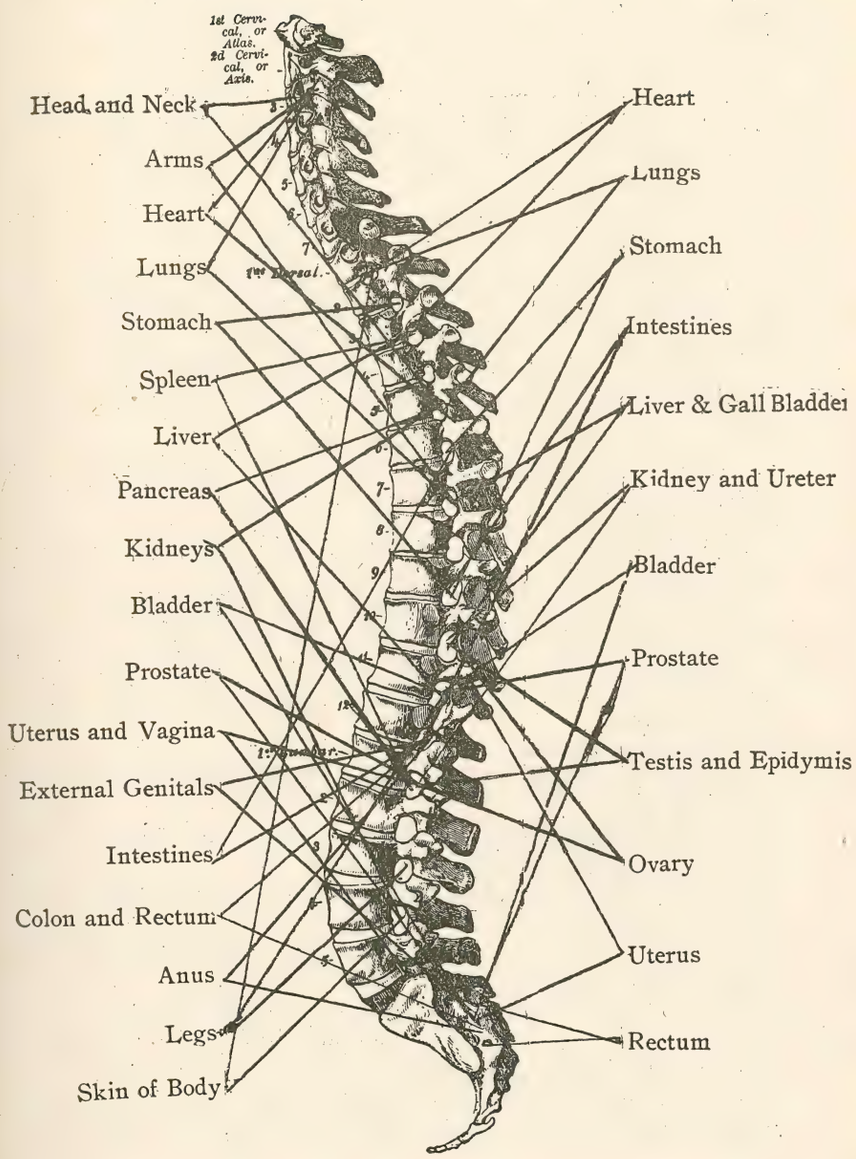
Arms.—Vibrate from the third to the seventh dorsal, inclusive.

Heart.—Vibrate from the third cervical to the fifth dorsal, inclusive, and tender spots may be located at the first, second and third dorsal.

Lungs.—Vibrate from the third to the seventh dorsal; tenderness may be located from the first to the fifth dorsal; inclusive.

Stomach.—Vibrate from the second to the ninth dorsal; tenderness from the sixth to the ninth dorsal.

Spleen.—Vibrate from the third dorsal to the first lumbar, inclusive, especially the fifth, sixth, seventh,



eighth and ninth dorsal on the left side sensitiveness will be detected on the left side from the fifth to the ninth dorsal vertebra.

Liver.—Vibrate from the third to the eleventh dorsal, especially from the fifth to the ninth on the right side. Tenderness will be found from the seventh to the tenth on the right side.

Pancreas.—Vibrate from the fifth dorsal to the first lumbar, inclusive.

Kidney and Ureters.—Vibrate from the fourth dorsal to the fourth lumbar. Tenderness will be located from the tenth dorsal to the first lumbar, inclusive.

Bladder.—Vibrate from the eleventh dorsal to the fourth sacral, inclusive, and look for tenderness over this area.

Prostate.—Vibrate from the first lumbar to the fifth sacral; look for tenderness from the tenth dorsal to the third sacral.

Uterus and Vagina.—Vibrate the lumbar nerves and also look for pain or tenderness at this region.

External Genitals.—Vibrate from the twelfth dorsal to the fourth sacral; tenderness over the same region.

Intestines.—Vibrate from the sixth dorsal to the first lumbar, inclusive; tenderness from the ninth to the twelfth dorsal.

Colon and Rectum.—Vibrate the sacral nerves and look for tenderness at the second, third and fourth vertebra.

Anus.—Vibrate from the twelfth dorsal to the fourth sacral; tenderness over same area.

Legs.—Vibrate from the eleventh dorsal to the third lumbar, inclusive.

Skin of the Body.—Vibrate from the first dorsal to the fourth lumbar, inclusive.

Testis Epidymis and Ovary—Vibrate from the eighth dorsal to the fourth sacral; tenderness will be found from the tenth dorsal to the first lumbar.

In maintaining the normal functions of the body, in which health may be considered the standard, we have

four principal factors, which are of the greatest importance; the nerve and blood supply, absorption and elimination. These organs and functions are especially favorably influenced by vibratory massage, often requiring treatment in both a direct and indirect way; that is, we can control these functions in what may be considered an indirect or reflex way, through the nerve centers of the spinal column, and can assist elimination by vibrating directly over the part. To illustrate: the most obstinate cases of constipation can be relieved by either of three methods, or better still, the three combined. First, by stimulating the nerve centers in the spinal column, from the sixth dorsal to the twelfth, inclusive, and the third, fourth and fifth lumbar, and the first, second and third sacral. It is always a good plan, however, to vibrate from the fifth dorsal down to the coccyx, on both sides of the spinal column, pressing the ball applicator firmly in at the side of the spinous processes. Great care should be exercised not to vibrate too long, or to make too heavy pressure; the percussion stroke is used from eight to ten seconds. An important thing to remember is that too long and heavy stroking will inhibit and produce constipation, while the short strokes, repeated frequently over the same areas, during the treatment period, will produce stimulation, which is the result desired.

The patient is now changed from the abdominal to the dorsal position, with his knees drawn up, to relax the abdominal muscles; this is the preferable position in abdominal and thoracic treatments. Direct stimulation may now be applied over the liver, to increase the activity of that organ; the brush or flat applicator is preferable, with a lateral or rotary stroke.

The colon is the next organ to occupy our attention, starting at the cecum, and following the course of the ascending transverse and decending bowel, dwelling only a few seconds at each point, and continuing the course of the vibrator in a spiral or rotary movement, (see illustration). This course should be followed sev-

eral times during each treatment, which is more effectual than one treatment applied at length. The patient should now be placed in the Sim's position, for direct vibration to rectum and lower bowel. For this purpose the vibratodes G. and O., may be used, and the medium rotary or lateral stroke is to be employed, (the percussion stroke is absolutely of no value), by making firm pressure against the anus for thirty or sixty or more seconds. At the termination of the treatment the patient will usually experience a desire to evacuate the bowels; which, of course he should be allowed to do. The value of vibratory massage may be summarized as follows:

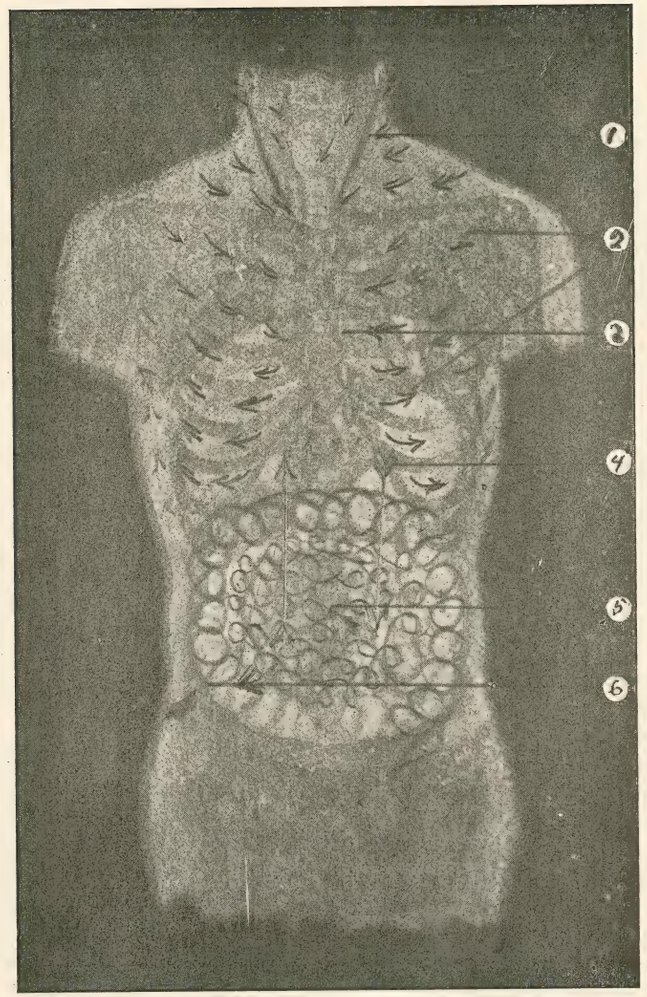
The Blood, which in all instances may be considered the first, and to the injured, a very important element, as it is through this vital fluid that all processes of healing take place, and by controlling and equalizing circulation, we generally maintain health. Wherever obstruction of circulation is observed, we find congestion, inflammation or perhaps abscesses. Obstruction to the veinous circulation is the most frequently met with, and nearly always present in many forms of heart, lung, liver and kidney diseases; as an adjunct to other therapeutic measures vibratory massage is indispensable.

The Lymphatics perhaps hold the second place of the important organs to which vibratory therapeutics are successfully applied. These glands are divided into two sets, the superficial and deep seated; the former lie just beneath the skin, in the loose connective tissue, and are found in the neck, axillae, front of elbows, groin, popliteal space, etc., the latter follows the course of the large blood vessels, and are found on both curvatures of the stomach, in the mesentery, liver, spleen, kidneys, uterus, bladder, etc. These glands are often referred to as the scavengers of our body.

When disease attacks any special area of the body these glands become at once involved, often obstructing their functions. It is plain to see the importance of

vibratory stimulation as an adjunct therapeutic measure to open up this drainage outlet, and unload the system of toxic material, through the eliminative process. A very important thing to remember is that all vibratory movements, pertaining to the circulatory system, should be made towards the center; that is, the blood vessels should be vibrated towards the heart, and the lymphatics should be vibrated in the direction of the lymph flow. The vibratode simply acts like a pump, by forcing the blood and lymph onward in their natural course, which not only relieves the system of toxic influences, but stimulates the organs to new life and activity.

The Nerves.—Having previously discussed the technique of vibratory massage, upon the spinal nerve centers, we find it often necessary to apply direct vibration to nerve trunks, in many pathological conditions. The pneumogastric nerve emerges from the cranium, at the jugular formum, and passes down the neck, in the sheath of the carotid artery and is best reached along the inner border of the sterno-cleido-mastoid muscle (see illustration). It should be borne in mind that prolonged stimulation of this nerve slows the action of the heart, even to the stage of fainting, and such treatment should not last over ten or twenty seconds. The sciatic nerve can be reached along its course on the posterior thigh, and also back of the great trochanter, (see vaso-motor centers). The solar-plexus is best reached and influenced by vibrating upwards and downwards about two and one-half inches, on both sides of the umbilicus; commence just below the umbilicus, and vibrate upward to the rib line, and downward from this point. Headache and neuralgia are nearly always relieved by prolonged vibrating directly over the painful area; frontal headache is best relieved by vibrating over the super orbital notches.



VIBRATORY AREAS OF CHEST AND ABDOMEN.

1. Pneumogastric Nerve. 2. Chest. 3. Sternum. 4. Solar Plexus. 5. Small Intestines. 6. Colon.

ABDOMINAL VIBRATION.

We have already described the method of vibrating the colon. The small intestines may be stimulated to activity by commencing at the umbilicus, and following a circular course to the cecum. It is well to follow this course, previous to vibrating the colon, for stomach disorders and inactivity of the bowels.

Vibrating the Chest.—In vibrating the chest the patient should be placed upon his back, and his hands clasped back of his head. The brush applicator is preferable, for these movements commence from the inferior maxillary, and stroke downward to the clavical; the inter-costal spaces of the sixth upper ribs should be treated towards the sternum and the spaces below. (The short arrows, on the accompanying cut, will illustrate the course to pursue). The sternum itself can be stroked either up or down.

Electro-Therapeutics

When Benjamin Franklin was conducting his experiments with electricity, with a kite and key, the people would ask: "Of what use is it, anyway?" "Never mind," retorted the old philosopher, "It's only a baby now; it might grow to be a man some day." The present generation is living in an age to witness his prediction come true, and electricity has not only grown to be a man, but a giant, in both the commercial world and as a therapeutic measure. Ever since Galvani's experience, related on another page, electricity has been steadily growing in favor as a means of treating diseases and alleviating suffering. Electricity, like many other things introduced in medicine, has in former years, been but little understood, and therefore, too much has been expected from this influence. As science progresses, however, and we learn more of the nature of this element, we are able to utilize it in therapeutics to a better advantage. It is not what electricity has accomplished; it is what it has not accomplished that has made some practitioners depreciate its value. Like all other things of a physical nature utilized in treating diseases it has its special sphere of operation, and the better we learn to identify its sphere and utilize its application in practical ways, the more competent we are to use this agent in the treatment of disease.

One of the most confusing things regarding the use of electricity is: there seems to be no absolute standard or set laws for its use. One operator will accomplish results by one method of application, and another will accomplish the same results by another, so when stereotyped rules are laid down for manipulating the currents, the amateur electrotherapeutist is at once confronted by the perplexity of technique. Difference of opinion, however, is the spice of argument, and if each observer did not air his views, the entire practice of medicine would be a one sided affair. We would have no more idea of reaching the facts than preachers have of piloting sinners to heaven, through the different denomination routes.

I fully realize that electrotherapy offers too broad a scope to be completely discussed in a publication of this kind; yet the fundamental principles may be sufficiently outlined to induce the reader to delve more thoroughly into the subject, as no office practitioner could possibly think of successfully conducting an office practice, without including this valuable agent with his armorment against disease. Perhaps the only word of caution I should give, is not to accept this agent as a panacea for all ills, a mistake made by many over enthusiastic practitioners.

Electricity, like the other physiologic methods in the preceding chapters, has its circumscribed field of operation, and outside of this, it is of little or no value, and often does more harm than good; when not properly understood; therefore, to be an Electrotherapeutist does not simply mean to be the possessor of an elaborate outfit of electrical machines or apparatus to display for commercial purposes, as does the charlatan with the buzzing from his Faradic battery, but to understand the construction, mechanism and generative forces they possess, to manufacture and to supply this force, known as electricity, and, after this force is harnessed by special apparatus, to dispense it in the different forms or currents, where it can be utilized to the best advantage in the treatment of disease.

The first question a student, contemplating the study of electricity would ask: what is electricity? The word electricity is derived from the Greek word Electron, meaning amber; as the ancient sailors discovered, by the friction of amber and similar substances various attractions, repulsions, sparklings and other phenomena

were manifested. Most scientific men hold the view that electricity is ether itself, which is the elastic incompressible medium pervading all space; conveying luminous and other vibrations, and that the phenomena of positive and negative electrifications are due to displacement of the ether, at the surface of bodies.

The researches of Hertz, who, by direct experiments, verified Maxwell's brilliant theory that electrical action is propagated through space by wave motion of the ether, differing only in respect of wave length and period from the vibrations which constitute light, have been of the utmost value in helping to arrive at a solution of the problem.

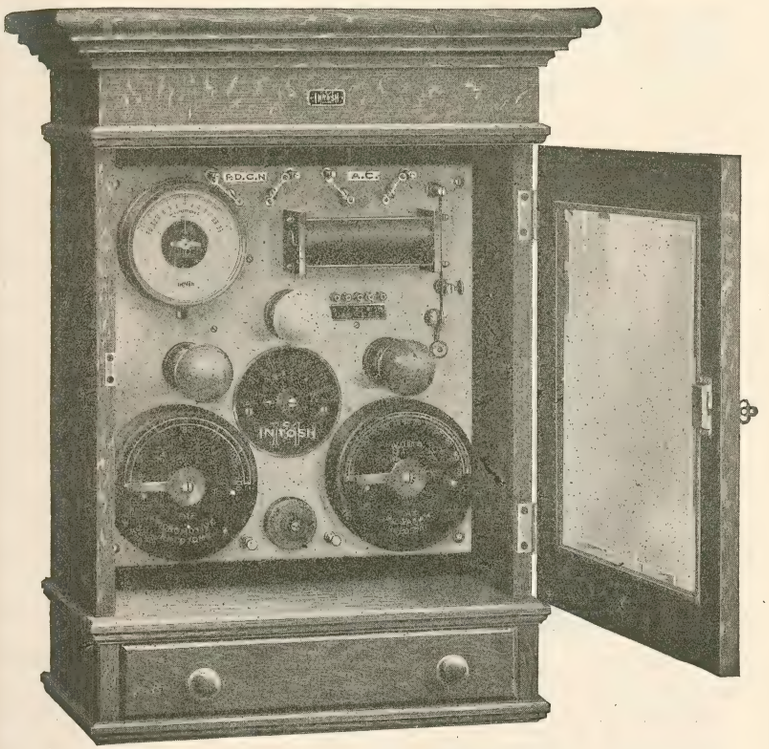
Investigations into the phenomena of electric discharges in high vacua, followed by the discovery of the X-Rays have also thrown much light on the subject. The general conclusion is, that ether is electricity in an invisible or passive state, and the only way to convert it into energy is to destroy its equilibrium, as is demonstrated in various ways, from the simple ruffling of the fur on a cat's back, to the friction of clouds, during a thunder storm.

For therapeutic purposes, this energy is generated by chemical decomposition and other means, and is conducted and controlled by different electrical apparatus and machines, which are known and referred to as batteries.

A complete analysis of electro physics and technique is too exhaustive to fall within the scope of this publication, and it is generally understood that most physicians are familiar with these subjects; we will therefore devote only a few pages to a brief discussion of electric currents, etc., and give the technique of their use in the diseases, as these are specified.

The language of electricity, the same as any other science, is the first to become familiar in investigating the science. The nomenclature of electrotherapeutics, like any other science, undergoes certain changes from time to time, as the science progresses, and in order to

comprehend the meaning of these terms, we must learn what they incorporate. Many of the terms used in electricity were named after the men who established their principles.



MODERN WALL CABINET.

GALVANIC ELECTRICITY.

Was founded by Galvani, the Italian anatomist, about 132 years ago. This form of electricity is also referred to as the direct, or continuous current, and is one of the most simple means of converting chemical decomposition into electrical energy.

A galvanic cell consists of a plate of carbon, and a plate of zinc, immersed in an exciting fluid. There are several chemicals or combinations of chemicals used for this purpose, of which the following is one:

Bichromate of potassium	2¼ oz.
Sulphuric acid	3 oz.
Mercury bisulphate	120 gr.
Water	16 oz.

By connecting two or more of these cells together, we obtain sufficient electro-motive force for all therapeutic purposes, and this forms the type of battery most suitable for the physician living in the country, where he does not have access to the public lighting systems of the city. The most convenient way, however, is to utilize the 110 volt direct current from the city lighting system, providing this current is furnished; most cities, however, have only the alternating current, and in such circumstances, a small rectifier, (see cut), is used to transfer the current from an alternating to a direct current. This form of electricity is one of the most valuable in electro-therapeutics, as it has the greatest field of usefulness in electrolysis and cataphoresis.

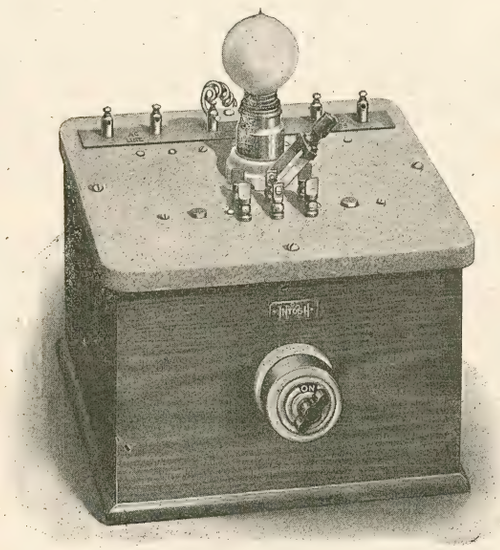
DIFFERENCE IN POLAR EFFECTS.

The galvanic current is generated by chemical decomposition in the galvanic cells which takes place at the surface of the zinc plate, and is therefore, the positive element within the cell, as the current flows towards the carbon plate, which makes this the negative element, outside of the cell. It is just the opposite, the carbon terminal is called the positive pole, and the zinc terminal the negative pole. These two poles, used for therapeutic purposes, are decidedly different in their effects.

The positive pole is often spoken of as the acid pole, and has a caustic effect which hardens tissues with

unyielding cicatricial tissue; is a vaso constructor and will stop bleeding, and is sedative in its effects.

The negative pole is often referred to as the alkaline pole, and acts as an alkaline caustic. It softens, disintegrates and liquefies tissues, with very little resultant cicatricial tissue, which is more soft and pliable. It is a vaso dilator, and likewise increases bleeding and pro-



ALTERNATING CURRENT RECTIFIER.

duces hypersensitiveness. Their polar effects, which are decidedly opposite, are among the first things to be understood in handling electric currents, and we can readily see why the old doctors, who would advise "If one current don't do the business, try the other," were so erroneous in their methods and disappointed in their efforts; nowadays the physician's reputation is at stake in selecting the right pole for the condition in which it is indicated.

ELECTROLYSIS AND CATAPHORESIS.

Both these functions are derived from the galvanic current, and constitute two of the most important methods of utilizing this form of electricity.

Electrolysis is the process of separating, or decomposing elements by electricity, and we have at our disposal an alkaline or acid radical, which may be used as the case demands, by using the different poles of the currents. For electrolytic work, however, the negative pole is always used, because it acts as an alkaline caustic, and leaves the tissues soft and pliable, while the positive pole hardens the tissues and may result in unsightly scars; therefore, the negative pole is preferable in the removal of superfluous hair, warts, moles, navi, etc.

Cataphoresis is the process of conveying medicines into the tissues of the body by means of the continuous current; thus, thiosinamine is used to dissolve scar tissue. Potassium iodide is used, to excellent advantage, to reduce glandular enlargements, particularly in goiter; local anaesthesia may be induced by the use of cocaine, etc. These solutions are always used on the negative pole and will be referred to later.

FARADIC ELECTRICITY.

(Magnetism.)

Was first devised by Michael Faraday, of England, in the year 1831, from whom it takes its name; but at the present time is more frequently referred to as the induced or interrupted current. There are three ways of supplying this electric force. The first is the lodestone, or natural magnet, and the second by means of wrapping a coil or coils of insulated wire around a cone of very soft iron and charging the wire with an electric current. The third, or static induced current, is taken from the outside coating of Leyden jars, attached to a static machine.

This form of electricity is used for its general tonic

effect upon tissues, by causing the muscles to contract, the blood to circulate more freely, and as a general stimulant to metabolism.

Dr. Homer E. Bennett, briefly states the physics, physiology and therapy of the induced current as follows:

The primary faradic current is really an interrupted galvanic current with the added magnetic properties imparted to it, from its immersion in the electro-magnetic field of the core, which gives it more potential. The primary has but little power of penetration and, therefore, the effects are superficial and its usefulness limited, but, when a paralyzed nerve is superficial, it may be stimulated by the primary current.

On account of the amperage or current strength of the primary, it will cause powerful contractions of the superficial muscles. This current is more stimulating and irritating than is the secondary, hence it will increase the capillary circulation in the skin and is used to good advantage in this way as a tonic stimulant in conjunction with the electro-vapor bath. The primary current is uni-directional, but is interrupted with the frequency corresponding to the "make" and "break" of the vibrator. Coming from the primary cells, it has feeble galvanic properties, being both electrolytic and phoric to a slight degree, but its chief action upon the living organism is as an excitant to contractile tissue and a stimulant to sensory nerves, by reason of the interruptions, which cause sudden variations of the potential. The very suddenness of this change in the electro-motive force makes this current a powerful stimulant for exciting muscular contractions and arousing the action of the sensory nerves and the promotion of tissue metabolism.

The secondary induced current differs radically from the primary in every way, both in production and effects. The secondary coil current is the purely induced current and has no available amperage or current strength, and, therefore, no electrolytic (chemical), or

any phoric effects. Through the process of induction the voltage is enormously increased, so that it has great power of penetration, and will influence deep-seated conditions.

On account of the rapid hysteresis in the primary field, there is produced a fluctuation in the secondary potential, which imparts to the secondary coil current to-and-fro or alternating character. Therefore, the secondary current has no fixed polarity, but there is a difference in the rise and fall of this potential, which gives to it a slight polar effect, but which is entirely mechanical.

The current induced by the "make" is slower than the reverse current induced by the "break," in the primary. The electro-motive force is varied by the rapidity of the interruptions and by the size and length of the wire on the secondary coil. If the interruptions are very rapid and the coil composed of many turns of fine wire, the resulting current, though interrupted, begin to resemble, in physical properties, the sinusoidal modality. The approach to and departure from the highest and lowest potential, in each period, is, by this construction, made more gradual, and the physiological effects are as stimulants and not irritants, therefore, it is a tonic and sedative to both motor and sensory nerves.

This current is what constitutes the so-called "high tension" current, which has a decided analgesic or anaesthetic effect, and will relieve pain.

The secondary current will contract muscles, the interruptions being so rapid that the muscles do not have time to relax between the interruptions, therefore, the muscles will remain in a state of clonic spasm as long as the current flows. There being no chemical effect to the secondary current on account of the absence of amperage, the pain is relieved in an irritated nerve through a process of tetanization of the nerve.

The current from a short, coarse secondary coil is rough, harsh and irritating, and, therefore, painful, and when ignorantly or carelessly applied is often injurious.

The cheap batteries, commonly found in the stores and sold to the laity for self-treatment, are usually of this character, and by them many have been "shocked" till they are fearful of all kinds.

In some cases of paralysis, where it is desired to get powerful stimulation, this current is indicated. Likewise in cases of narcosis, drowning, asphyxia, poisoning, etc., this current may be used to advantage to induce and keep up artificial respiration.

The best induction coil for the general practician or electro-therapeutist is one in which the strength of the primary can be changed and in which the number of the primary interruptions may be regulated, by means of both slow and rapid vibrators, and in which the secondary contains at least 3,000 feet of No. 36 wire and with another thousand or fifteen hundred feet more, which may be added when desired, for the sedative effect. The primary coil should have about 200 feet of No. 20 wire.

The primary currents are useful in producing superficial stimulation, equalizing capillary circulation, and in giving general tonic treatments.

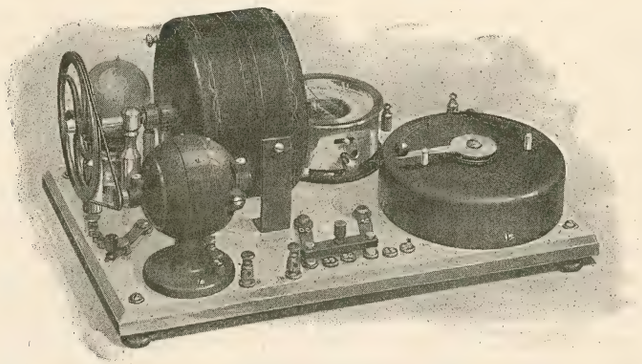
The coarse secondary coil currents are indicated for powerful stimulation, such as for massage effects in atrophy, paralysis, perversion of cutaneous sensibility, and in relaxed and sluggish states of the bowels, and glandular systems, narcosis, etc.

The high tension or long, fine wire coil currents are indicated in deep-seated nervous and painful conditions, as ovaritis, neuralgia, and sub-acute and chronic engorgements, due to vaso-motor paralysis, and in depraved states where there is need of stimulation of tissue metabolism and retrograde metamorphosis.

THE SINUSOIDAL CURRENT.

The Sinusoidal current is one of the three forms of induced currents used in medicine, and differs from the faradic and static induced, inasmuch as the alternations

produced are smooth and even, instead of rough and irregular in character. Of the three alternating currents the Faradic is the most unsatisfactory, as it produces muscular contraction with such force as to be painful with many delicate subjects. The static induced current will produce muscular contraction, with less pain, but is more difficult to control. The Sinusoidal current will accomplish the same results as the two former currents, and produce powerful muscular contractions, with but little or no discomfort to the patient, and when compared with the other interrupted currents, is like the calm rolling tide of the ocean, after a storm,



POLYSINE GENERATOR.

and is particularly indicated in atonic visceral conditions. We have no more effectual agent than the Sinusoidal current. Its peculiar properties of exciting contraction, both of striated and nonstriated muscular tissue painlessly, makes it invaluable in the treatment of Chronic Gastro-Intestinal disorders. It will relieve the most obstinate cases of constipation which have repeatedly failed to be more than temporarily benefited by other methods.

In Chronic Cystitis, especially those cases associated with enlarged Prostate, the results are particularly gratifying, and when used alternately with the constant current, the final result will be more than satisfactory, to both physician and patient.

Seminal Vesiculitis, Prostatitis, Varicocele, Atrophied Testicles, in fact any condition where there is loss of tone, or nutrition is impaired, the Sinusoidal is the current par excellence.

All forms of Neuritis, whether acute or chronic, and many Neuralgias, are cured, where the use of other currents has proven unavailing.

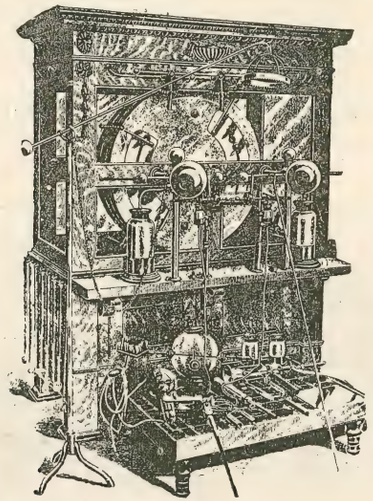
The remarkable properties, tonic, stimulant, and sedative, produced by this current, together with its profound effect on nutrition, make it an almost indispensable addition to the armamentarium of the physician.

STATIC ELECTRICITY.

With static electricity we have a form of electric energy which consists of nearly all voltage, and very little or no amperage, and while the body of the patient is required to come in contact with both poles of the continuous or induced currents, in this form of electric procedure, the electric charge may be forced in local areas with one pole, and conducted through the body to the other pole, through the ground or air, at a long distance; therefore, we may administer the local effects of electric currents to circumscribed areas, by the use of special constructed electrodes, while the entire body is being charged with a high potential current, which is extensively used for its tonic effect, and a process of increasing cell metabolism, in the treatment of many organic and functional diseases.

One of the most popular forms of treatment with static electricity, is called the breeze treatment, or the static bath, which is given to the patient on an isolated platform, connected with one of the static jars, while the other jar is connected with a crown electrode above the head. The influence of this current is very sooth-

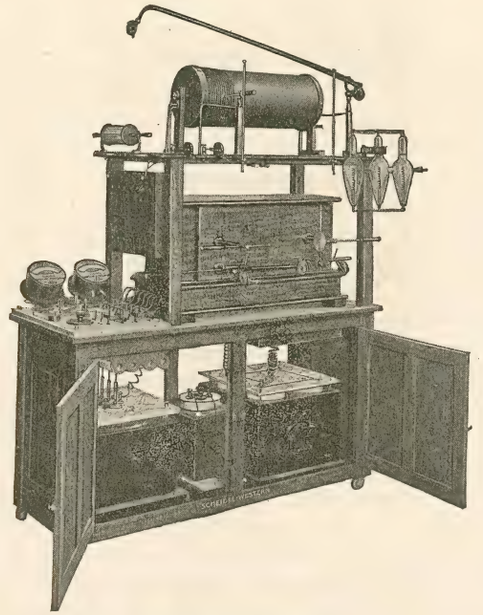
ing to many patients, as it gives the sensation of a gentle breeze to the head, and acts as a sedative, and often relieves headache and induces sleep; in brief, it tranquilizes and equalizes the nerve forces, dilates the cutaneous vessels, and hastens the elimination of waste products, carbon dioxide, urea, etc.



STATIC MACHINE.

ROENTGEN OR X-RAYS.

It was in the year 1895, W. C. Roentgen, announced to the world the discovery of invisible, non-refractible rays, eminating from the surface of an electrically excited vacuum tube, opposite the cathode electrode, having the power of permeating objects impervious to light or heat rays, and affecting photographic plates in a manner similar to light rays. Not being certain as to the nature of these rays, he provisionally termed them "X-Rays" and, although seventeen years have elapsed since their discovery, we are still ignorant of their true nature. The X-Ray has not only served the surgeon as a valuable means of locating foreign bodies, dislocations and fractures, but is one of the most valuable means we have for the treatment of certain cutaneous conditions and cancer; recent investigations have proven such remarkable results that the most radical claims may not be impossible of realization.



X-RAY GENERATOR.

HIGH FREQUENCY CURRENTS.

This form of electric currents was introduced by Nikola Tesla, in the year 1900, and is referred to, synonymously, as the "high frequency" or "Tesla currents" which is an oscillating current, in which the frequency is beyond the point of producing muscular contractions. Muscular contractions cease with 10.000 oscillations, which has been taken as the dividing line between medium and high frequency currents. Many

of the high frequency apparatus are estimated to develop over a million oscillations. This current may be developed from a static machine with the addition of an Oudin resonator, or by securing a special high frequency coil of which there are many elaborate outfits on the market.

Ozone Therapy

Ozone is another product of nature, which is fast gaining the confidence of the Medical Profession, as a natural therapeutic agent, and, while nearly all Sanitariums utilize this adjunct, many office specialists do not consider their equipment complete without the addition of an Ozone generator. Van Marum was, perhaps, the first to identify this gas; although Prof. Schoenbein, was the first to give it its present name, and christen this agent for therapeutic purposes, in the year 1845, but owing to a deficient means of generating this gas, very little was done to advance its therapeutic value, until within recent years, but at the present time, the manufacturers of ozone producing machines are keeping pace with other inventive skill, and we have offered us many reliable mechanical devices, which the physician can utilize, to supply ozone to the class of disease in which it is indicated.

All electric currents produce ozone to a certain extent, but in order to generate it in sufficient quantities to be dispensed for its specific influence, it is well to understand the process of liberating this gas. Whenever an electric spark passes through the air, ozone is liberated, and at the same time, nitrous gases and oxides are produced, which are injurious to inhale. It has been demonstrated that the less perceptible spark accompanying the production of ozone, the less amount of these objectionable gases it will contain.

The static machine was formerly used for the purpose of producing ozone, but owing to the poisonous by-products, mentioned above, this means of generating ozone has been abandoned for the modern ozone

generator where these poisonous gases are eliminated by filtering the ozone through balsamic oils, which not only adds to the agreeableness of the treatment, but also to the curative effect of the ozone itself. The following is a favorite formula for the filtering oils.

Oil of pine..... 2 parts
Oil of eucalyptus..... 1 part

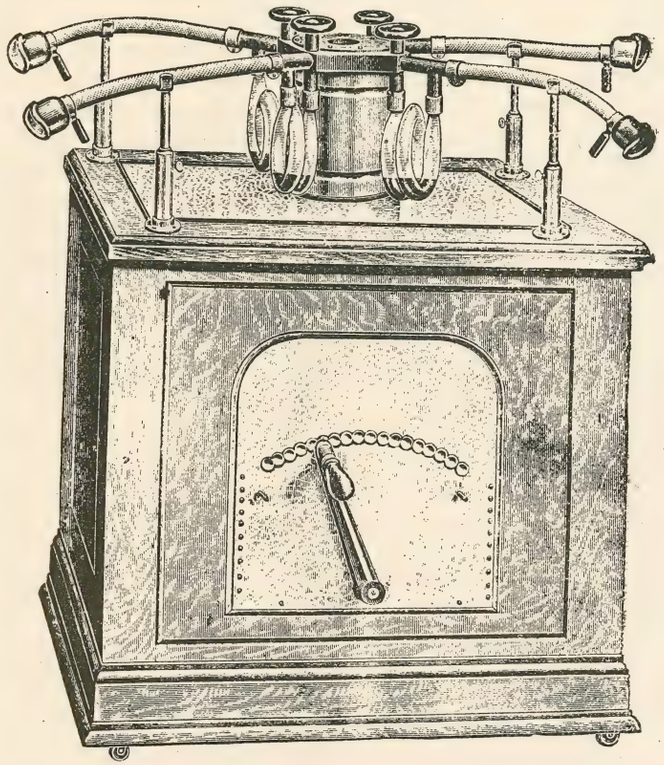
These oils, after being in use sometime, to purify the ozone, are used in the treatment of many skin diseases and indolent ulcers, for which they make a very valuable dressing. Some advertising physicians have attempted to promote their sale under the name of "Ozone Oils," etc.

Ozone may be administered to the patient by direct inhalation, through rubber tubes, from the ozone generator; or, many physicians equip a small room in their offices or Sanitariums, which they call "The Inhalatorium," and allow their patients to occupy this room certain hours of the day, and many sleeping rooms in Sanitariums are impregnated with ozone through the night; thus providing the "mountain air" in any locality which, in my opinion, is the best way to supply this therapeutic agent.

Where patients visit the office and inhale ozone direct from the generator, there can be no stated time allowed for each treatment, as some cases may require longer inhalations than others; therefore the direct inhalation is the best means of treating acute attacks of Bronchitis, Asthma, etc., but the continuous supply of ozone in the inhalatorium or sleeping room is the best means of treating chronic diseases of the air passages, and especially consumption, where the continuous influence of this agent may be obtained.

Ozone is an allotropic form of oxygen, and is frequently referred to as a purified, or a highly energized form of oxygen. It will readily be seen what a large field of influence such an agent will have on animal life, in oxygenizing the blood and tissues of the body. As a blood builder and reconstructive it has no equal. Its

bacteriacidal properties have long been recognized, and many public places use ozone to purify the air and water, as ozone will rapidly destroy the most objectionable odors. The germs in sewers have been reported destroyed to the extent that the filtered water is suitable for drinking purposes.



OZONE GENERATOR.

Ozone can never be recognized as a specific cure for any disease, but like many other things in physiotherapy it has its special sphere of usefulness, and when employed in conjunction with other therapeutic meas-

ures, it aids the natural processes by restoring health. In other words, it is one of the reinforcements to other therapeutics, in their battle against disease. It might be stated that ozone is indicated in all diseases, for pure air is essential in restoring all forms of low vitality. Its special sphere, however, is in the class of diseases which can be treated through the absorbent processes of the air passages. By inhaling ozone we sterilize the air passages, and fortify the lungs against invading bacteria; hence, its usefulness in tuberculosis and infectious diseases of the air passages. Its oxidizing effect upon the blood makes it of the greatest value in the treatment of anaemia and chlorosis; also, other forms of impaired nutrition, whooping cough, asthma, hay fever, and bronchitis are always greatly benefited by inhalation of ozone, Syphilis, and other morbid conditions of the blood and tissues, rapidly improve under the influence of this therapeutic agent, and although its sphere of remedial value is more pronounced in some diseases than others, it has a universal usefulness in all forms of animal life.

Medical and Surgical Specialties

In considering the Medical and Surgical specialties, which are suitable for an office practice, it is generally understood that the physician in charge has ceased to be a free bureau for general advice and distributing agent for invalids, as was the former custom of many general practitioners, who would dispose of their cancer patients to some cancer specialist or hospital; would allow their hernia patients to drift into the hands of some advertising "Rupture Specialists"; would send their throat and nose patients to some "Larnygologist," etc., while there are many learned and esteemed specialists throughout the country at this age of modern therapeutics, appliances and apparatus which are accessible to every physician, and the most excellent text books on all subjects of medicine and surgery are at his disposal, and by becoming familiar with the manipulation of one, and the technique given by the other, any physician of ordinary skill can, within a comparatively short time, cope with many diseases and conditions which it was formerly thought, should be treated by the "city physicians." Of all the physicians in the world the country general practitioner is the most resourceful, and has in the past years, been compelled to adapt himself to circumstances and conditions; now that mechanical ingenuity has placed these modern therapeutic agencies within his reach at a reasonable outlay of money, and medical writers have given him the best of their knowledge and experience, there is no reason why every

physician should not incorporate the treatment of many diseases in his practice that was formerly sent to the specialists, and receive the financial returns to which he is justly entitled.

In adopting the office specialties, his first step is to become familiar with the physiologic apparatus outlined in the foregoing chapters, and the technique of their use; he should next endeavor to utilize them to the best of his ability, in connection with all the Medical and Surgical specialties which he can successfully master, and it is hoped, some of the minor specialties given in the following pages may render him some assistance in this field of labor.

There are two ways of specializing in medicine; one is to master the disease of one or two organs, or groups of organs, and the other is to master all the diseases possible, irrespective of their organs.

There are very few physicians who have not entertained the idea that some time they would specialize, but could not decide on any particular specialty, thinking each field overcrowded; this is quite true in many respects, for our cities contain nearly as many specialists as they do general practitioners; therefore," he who has hesitated is lost."

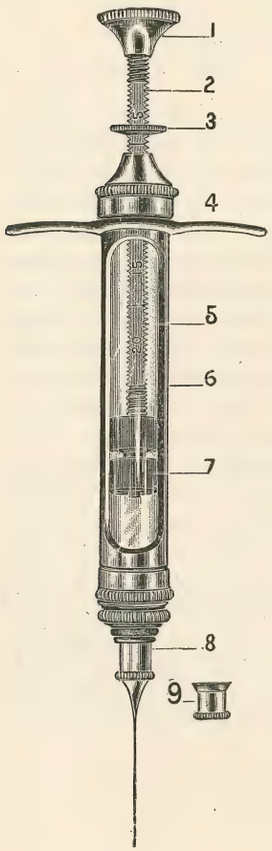
In choosing specialties such as this publication is endeavoring to present, we would naturally select such diseases as are the most prevalent and frequently met with in office consultations. Very few physicians would care to specialize in the treatment of disease of the spleen, because he would be better remunerated for his services if he successfully treated the diseases peculiar to women, as this field is rich in clinical materials. It has been stated that every woman has some form of female weakness, therefore our fashionable gynaecologists are among the best salaried physicians in the country, and we often wonder why the late Dr. W. Todd Helmuth was inspired to write the following verse:

"But 'mid these varied callings all,
The man that heads the list
Is the gentle fingered ge-ni-us,
The Gy-ne-col-o-gist.
He is such a charming fellow,
So clever in his way;
He always thrives in cities,
We meet him every day.
His rooms are over-crowded
With ladies, quite a host;
And, if he has a wife, they trust
She'll soon give up the ghost."

In selecting the profitable office specialties we naturally select the diseases which are the most common. The social evils offer a large scope, therefore, genito-urinary and venereal diseases make a profitable specialty. Statistics show that every eleventh man, and every eighth woman, over forty years of age, have cancer. Every tenth adult person has some form of rectal disease; every twelfth man, past thirty-five years of age, is ruptured. Visit any public place and observe the number of deformities and blemishes of the face, which should be corrected or removed; review the number of alcohol and drug habitues, living in your immediate vicinity, that could be encouraged to abandon their habits through the treatment you could administer. These, together with the long list of chronic ailments, rheumatism, catarrh, and all throat, nose and lung diseases of the prima viae and nervous system, are the class of diseases which can be successfully incorporated in an office practice, and with a very few exceptions, these ailments can be as successfully treated by the office practitioner as they may be by many self-styled "specialist" who boast of their superior skill in the treatment of various diseases.

Hypodermic Medication

Of all operations which come within the domain of surgery, the use of the hypodermic syringe is perhaps the most insignificant, yet if we watch many practitioners use this valuable little instrument, we hang our heads in shame, for their absolute neglect in observing the antiseptic principles with which this instrument should be used. Many surgeons are pronounced cranks regarding surgical cleanliness of their knives and other instruments, but they evidently think the hypodermic needle is too minute to be considered to any great extent; an adder's fangs are small, yet when they deposit poison under the skin, its toxic influence is realized, and the same is true with any other instrument, which penetrates the integument. Inasmuch as this little instrument renders important services for the office specialist, we will briefly outline some of the principles involved in its construction and use.



I always prefer the old style of glass cylinder syringe (given in the accompanying illustration), which embodies the following parts: 1, large, flat, piston head that the thumb may make heavy pressure; 2, graduated piston stem, which divides the contents of the barrel into minims. It is well to

remember that in speaking of "minims" in the following pages, we mean 'minims," as registered on the piston stem, and not drops as they are ejected from the end of the needle; light fluids contain several drops, thus counted, to the actual graduated minim. This is illustrated in the following medicines. Although they are not used in hypodermic medications, the principle is the same:

NUMBER OF DROPS IN 20 MINIMS OF THESE IMPORTANT MEDICATIONS.

Acetic Acid	40	drops	in	20	minims
Hydrocyanic acid, dilute	15	"	"	"	"
Muriatic acid	18	"	"	"	"
Nitric acid	28	"	"	"	"
Nitric acid, dilute	17	"	"	"	"
Sulphuric acid	30	"	"	"	"
Sulphuric acid, dilute	17	"	"	"	"
Ether	50	"	"	"	"
Fowler's solution	19	"	"	"	"
Oils, essential	40	"	"	"	"
Tinctures	40	"	"	"	"
Vinegars	26	"	"	"	"
Water, distilled	15	"	"	"	"
Ammonia	18	"	"	"	"
Wine antimony	24	"	"	"	"
Wine colchicum	25	"	"	"	"
Wine opium	26	"	"	"	"

This may be taken as a fair average, as dropped from a given vessel, but the drops will be found to vary according to the vessel from which they are dropped, owing to the size and contour of the flange or edge.

A little study of the table above may reveal why one sometimes fails to get the effect expected from a given dose, or why one cannot get constant results from a given drug.

3. Is the nut, set to regulate the number of minimums used; these exact measurements are absolutely necessary in hernia and other delicate operations.

4. The cross bar should be broad and strong, so that continued use will not make the fingers sore.

5. I always prefer the glass cylinder to the solid metal, as this style always allows you to view the contents of the liquid you are using, and gives you absolute control over the medication.

6. Is the metal framework which supports the glass cylinder; this should be open on both sides.

7. The plunger should always be provided with an oil cup to prevent the syringe from drying up, when not in use.

8. The needle is the cutting portion of the instrument, and should always be surgically clean, and when not in use, a wire, previously dipped in carbolated oil, inserted into its caliber, which will prevent the needle from rusting.

9. Is the cap which should be applied when the syringe is not in use.

Before using a syringe it should always be rinsed out with a good antiseptic solution, followed by sterile water, and the needle closely watched, to avoid the accumulation of any corrosive substance. To fill the syringe the needle may remain intact, but when filled it should be pointed upwards, and sufficient pressure made to expel all air. Where graduated doses of the solution are required, as in hernia, the set screw of the piston stem should be adjusted for the amount of medicated liquid required. By observing these few rules, hypodermic medication will never be followed with any disastrous results.

Local Anaesthesia

Other than averting death, the noblest calling of the physician is to mitigate pain, and the reputation of the modern operator hinges largely upon three qualifications, his kind and gentle manners, his skill and his ability to relieve suffering, especially during surgical procedure; by cultivating the former, and acquiring the technique of the latter, he will be amply rewarded in the practice of his profession, for that dreadful word, 'pain," is despised more by suffering humanity than the money trust is by the Populist party.

Modern chemistry has provided the physician with many valuable products for the purpose of producing local anaesthesia; the first and last of these discovered chemicals are of the greatest value, viz.: Cocaine and quinine and urea hydrochloride.

COCAINE.

When the Spanish conquerors landed upon the Peruvian coast, they found that the inhabitants greatly esteemed the cocoa-leaf, which they regarded with suspicious awe, and ascribed to it supernatural powers; only the priests, nobility, and inhabitants high in station, were allowed to chew the sacred leaves, which are now represented in their national coat-of-arms, and universally used by the populace, in much the same way as we use tea, coffee and tobacco.

Niemann finally identified the alkaloid contained in the leaves, in the year 1859 and gave cocaine to the chemical world; for nearly twenty-five years the medical world remained ignorant of the most remarkable properties of this chemical to produce local anaesthesia. It

was the year 1884 that Dr. Koller published the results of his experiments with this substance, as a local anaesthetic. After this, cocaine became generally known, and universally used, as a local anaesthetic. One of the principal points of argument against the use of cocaine has been its toxic influence, but my experience with this chemical product does not coincide with the observations and statements made by others, regarding its toxic effects; and I believe you will agree with me, that my experience has not been limited, when I state that I have used cocaine to produce local anaesthesia in over twenty thousand operations, and only in one instance have I ever seen a pronounced case of cocaine poisoning.

In the early part of my medical career I was associated with a dentist, and "acquired the habit," of extracting teeth; this was about the time the medical journals were filled with discussions regarding the toxic effects from cocaine. I continued its use, however, expecting every day I might meet my "Waterloo," and was finally rewarded (?) in my expectations. Previous to this, I had seen only slight symptoms of its toxic effects in its continuous use for nearly three years, in the removal of several thousand teeth, until the case referred to above was presented. This gentleman was about 26 years of age, six feet tall and proportionately built, excepting his head, which would fit about a 6⅞ hat. I noticed, however, that his head was, apparently, too small for his body. He wished fourteen teeth extracted; I, therefore, prepared them by injecting a three per cent cocaine solution in sections of three teeth at each treatment, which was my usual method. After I had prepared the three sections, I noticed that the patient was becoming pallid and perspiration was standing upon his forehead, denoting collapse. I at once gave him about three ounces of brandy, which seemed to have a decided reaction. In a few minutes he left the office, like a wild man, and ran through the streets to his home, about a mile distant; when I reached the house he was lying on the

couch; his respiration was rapid, and his pulse about 140, and he was pouring forth an incoherent vocabulary, which he must have reincarnated from the prehistoric Gods. I gave him hypnotics, and in a few hours, he regained his normal self; a few days later he had the balance of his teeth extracted, by the same method. I extracted only one tooth at a time, however, and waited as long as possible between each operation, which terminated like other normal cases. He was made to believe that it was the brandy, and not the anaesthetic that was the element which affected him, in his former operation; (we physicians are a deceptive lot).

It was plain to see that, in this case, an idiosyncrasy existed, and I wished to use the same anaesthetic to determine, if possible, if cocaine, used in moderate quantities, could be successfully used in this class of cases. During the second seance, one tooth was extracted at a time, and the time occupied was about one hour, but other than the patient's desire to talk freely, which showed there was a slight intoxication, there was no marked difference from any normal case.

I have frequently had patients evince an inclination to talk freely, which is one of the first symptoms of cocaine intoxication, and bears the same physiological relation to this drug as three or four good drinks of whiskey would to the "tippler." If we go beyond this stage, we increase the physiological effect, and excite the brain to temporary insanity, the same as we can induce delirium tremens by an over amount of alcohol; hence, the adage that it is "the abuse and not the use" of a drug which makes people condemn it. After the above experience, I was intensely interested in obtaining the truth regarding the physiological action and toxic effect of this drug, I therefore commenced to investigate the reports of death caused from cocaine, and although I communicated with many physicians and dentists, where these reports were derived, I have never been able to trace a single death to cocaine. My investigations included two cases of attempted suicide,

where twenty-three and thirty-two grains had been taken, without producing fatal results; also, the report of the late Wm. H. Hammond, made when he took eighteen grains, at intervals, during one hour, and survived his experience.

I am convinced that many of the reports regarding the toxic influence of cocaine are erroneous. To illustrate: Broughton reported a case in which unconsciousness and irregular, slow respiration, with a slow pulse, followed the application of three minims of a twenty per cent solution within the cavity of a tooth. Bettleheim records the hypodermic injection of one-sixth grain producing alarming symptoms. I have seen many operators condemn the drug, because the patient fainted; believing it to be the effects from the cocaine; it is these reports which have done much to deter the more extensive use of this anaesthetic. I do not wish to be understood as stating that this chemical will not produce alarming symptoms, when an idosyncrasy does exist; so will too much whiskey in certain cases, but as far as absolute danger and death is concerned, I am of the opinion that it will require larger doses than are given in ordinary cases, and may be considered a perfectly safe and reliable anaesthetic, if judiciously used; the use of cocaine may be summarized as follows:

It is one of the best and most active local anaesthetics in our possession, and bears as important relative value as a local anaesthetic, as morphine does as the leading anodyne and hypnotic; although it has many rivals, cocaine still leads the list.

It may be considered absolutely safe at all times, if used judiciously, and with the same precaution that other active principles are used. One grain may be considered the maximum dose, although I have used several times this amount without any pronounced physiological effects. There is no way of telling where an idiosyncrasy exists, but do not blame the anaesthetic for every case of fainting, etc., which may accompany any operation. Cocaine will not produce death, except in extremely large doses, and when injected in small

amounts it has no peer in scope for a local anaesthetic.

Cocaine solutions deteriorate in value with age, and when exposed to light and heat; solutions should, therefore, always be prepared fresh, or incorporated with other chemicals to preserve the solution. I always use cocaine in the following solutions:

℞ Cocaine hydrochlor . . . . . 15 gr.
Carbolic acid crystals . . . . . 17 gr.
Chloral hydrate . . . . . 5 gr.
Atropine . . . . . 1/15 gr.
Aqua, dis., q. s. . . . . 1 oz.

The above represents, approximately, a three per cent solution, which is the percentage I prefer for most minor operations; extracting teeth, lancing felons, etc.

When larger surfaces are anaesthetized, I often dilute this one-half, for the extirpation of tumors, etc.

Since the introduction of cocaine, as a local anaesthetic, there have been many other chemicals introduced from time to time, for the purpose of producing local anaesthesia. Tropacocaine was first obtained from the Java Coca leaves, and was afterward made synthetically. The hydrochloride is reputed as being less toxic than cocaine, more rapid in action, but of shorter duration. Eucaine -a- and Eucaine -b-, are proprietary, artificial, alkaloids, which are claimed to be less toxic than cocaine, and almost as efficient. As a local anaesthetic, the latter preparation is always preferred; their principal advantage being that solutions of these chemicals may be boiled without decomposition, and require no preservatives.

Orthoform is another patented product, which has no chemical relation to cocaine. It is non-toxic and somewhat antiseptic; its insolubility precludes its use by hypodermic injection. Its local anaesthetic effect is best used in dusting powders to abraded surfaces, and internally, for ulcers and cancer of the stomach.

Holocaine is another proprietary synthetic product, prepared by the interaction of phenacetin and paraphe-

netidin. It is too toxic for hypodermic use, and is used only in operations upon the eye, where it produces complete anaesthesia, without dilating the pupil, or affecting the blood vessels. Thus we find alypin, novocain, stovaine, chloretone salt solution, and even as simple a thing as plain sterile water, advocated, from time to time, as local anaesthetics for all minor operations. The principal endeavor has been directed toward obtaining an anaesthetic of equal efficiency, but less dangerous than cocaine; finally, we have presented to us quinine and urea hydrochloride.

QUININE AND UREA HYDROCHLORIDE.

In the year 1896, Dr. V. M. Griswold, of Fredonia, N. Y., first called attention to the value of quinine, used hypodermically, to produce local anaesthesia. Later, quinine and urea hydrochloride was used by several southern practitioners, as it was a very soluble salt, and could be used hypodermically in the treatment of malaria. It was discovered that the area or site of the injection would remain "numb," or anaesthetized, for sometime after the injection. No important notice was taken of this, however, until Dr. Henry Thibault, of Scotts, Ark., published an article on "A New Local Anaesthetic," in the *Journal of the Arkansas Medical Society,* for September, 1907. This report, naturally, created wide interest, and favorable comments were being heralded from all parts of the country. In Oct., 1909, Hertzler, Brewster and Rogers, of Kansas City, Mo., published a report of their investigations regarding the new anaesthesia, and found that, while the one per cent solution, recommended by Dr. Thibault, produced a perfect local anaesthesia of longer duration than cocaine, disturbances of skin union were frequently observed, but there was no pus formation, and the thickening appeared to be due to cellular infiltration.

Hertzler thereupon undertook to determine experimentally the cause of the induration. Experiments performed on rabbits showed that the thickening was not

due to cellular infiltration at all, as was supposed on clinical grounds, but was due to a pure fibrinous exudate free from cells. This exudate was proved to be fibrin by Mallory's and Weigert's stain. The reaction appears, therefore, to be purely chemical in nature. The exudation of the fibrin begins to appear within a few minutes. In a general way it was determined that the amount of exudation depended on the strength of the solution used; the attempt was made, therefore, to determine a strength of solution which would not cause this exudation of fibrin. With ½ per cent solution the exudate is less than with the 1 per cent, and with ¼ per cent solution only traces can be discovered. To what extent this fibrinous exudate is subsequently converted into fibrous tissue has not yet been definitely determined, but apparently nearly all is absorbed.

In order to determine the subjective sensations of the injection and to determine the question of a possible zone of hyperesthesia about the anesthetized zone, Hertzler studied the effect by injection in the skin of his own leg. Injections of 1 per cent, ½ per cent, ¼ per cent and 1/6 per cent solutions, and an injection of plain water for control, were used in each series. The 1 per cent and ½ per cent solutions gave immediate and complete anaesthesia without a particle of pain during its introduction. Within a few minutes there was a distinct induration. With the ½ per cent solution anaesthesia was not complete for a few minutes, but was then as complete as after the use of the stronger solution. The 1/6 per cent solution gave delayed anaesthesia, but after a few minutes was complete. In neither of these weaker solutions was induration noted on palpation. The water control caused intense pain on injection, and the anaesthesia, at no time perfect, lasted only a few minutes. There was a zone of hyperesthesia one or two inches in width about the area injected. Curiously enough, the hyperesthesia seemed to be for touch and not for pain.

The duration of the anaesthesia in the 1 per cent and

½ per cent solutions was perfect for four or five days, and sensation in the ½ per cent strength was not restored to any great extent for ten days, and in the 1 per cent solution sensation was not completely restored after two weeks. At no time was there the least pain, though the introduction of the 1 per cent and ½ per cent solutions was yet marked at one and two weeks respectively. Quinine anaesthesia, it will be seen, can be used for any operation where the use of local anaesthesia is indicated. It has three very decided advantages over any other local anaesthetic:

1. It is non-toxic, and can be given in unlimited dosage. Brewster has used 100 grains intravenously inside of six hours in a patient suffering from pernicious malaria.

2. The prolonged anaesthetic effect. In many cases post-operative anaesthesia has lasted from four to five hours to as many days and longer.

3. Where a solution containing 1 per cent or over is used, the hemostatic effect produced by the deposition of fibrinous exudate is of extreme value in preventing post-operative oozing.

"The exudate being fibrin in the strict chemical sense, the usual natural processes of hemostasis are anticipated. The coagulum occurs, it is true, about and not in the vessels, and their occlusion, therefore, results from pressure from without. The important point, however, is that the effect lasts from seven to fourteen days, a time abundantly sufficient to allow healing by granulation to become well advanced. This is in marked contrast to the ephemeral influence of cocaine and adrenalin, which act only by causing a contraction of the muscular walls of the blood-vessel."

Quinine and urea hydrochloride is a double salt of quinine and urea, made by dissolving quinine hydrochloride in hydrochloric acid, adding pure urea, and filtering the mixture through glass wool and allowing it to crystalize. It is soluble in its own weight of water, and in alcohol, it has the action of quinine and is non-

irritating when injected hypodermically, and produces local anaesthesia, lasting in some instances, several days, depending upon the strength of the solution.

Comparing the true therapeutic value of cocaine and quinine and urea hydrochloride, they may be summed up as follows:

COCAINE.	QUININE AND UREA HYDROCHLORIDE
1. It is soluble in water.	1. It is also very soluble in water,
2. It cannot be sterilized when in solution,	2. It can be sterilized,
3. Produces toxic effects, when used in large quantities,	3. It is absolutely non-toxic,
4. Does not have any hæmostatic action, unless used with adrenalin,	4. Has a very pronounced hæmostatic action,
5. Anæsthetic action is of short duration,	5. Post operative anæsthesia lasts from several hours to days,
6. Is conducive to the rapid healing of wounds.	6. The healing process is somewhat detained by its action.

In selecting, from the above, a local anæsthetic for surgical purposes, will depend upon the field of operation, and the results you desire to obtain. In all cosmetic operations upon the face, where you wish close union of the skin, and rapid healing, I always prefer cocaine, as I believe I have been rewarded with better results than from any other local anæsthetic. I also prefer this in all dental, and oral operations; used either in the foregoing formula, or combined with adrenalin, for its hæmostatic effect. Quinine and urea hydrochloride is always the anæsthetic of my choice for the removal of tumors, other than on the face, and to anæsthetize large surfaces. It is, also, preferable in many rectal, anal, genito-urinary, and gynecological operations, where one of the greatest influences, other than its use as anæsthetic, is to obtund post operative pain, until the healing process is sufficiently well advanced to

require no farther use of an anodyne. The technique of the use of local anæsthetics will be given when discussing the diseases in which they are used.

GENERAL ANAESTHESIA.

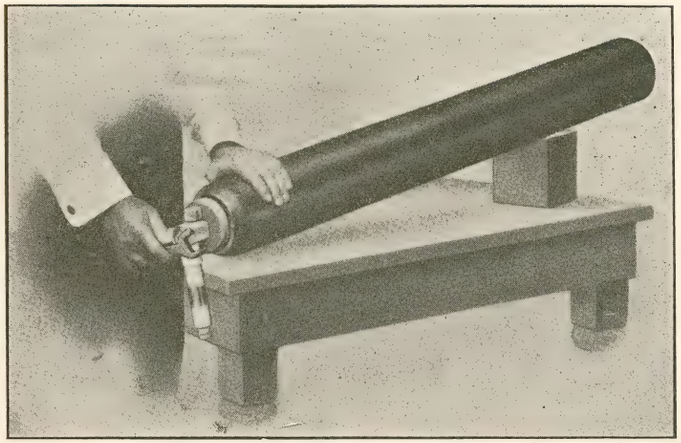
General anæsthesia is seldom required for most of the minor operations in an office practice; however, we occasionally find cases where they wish their consciousness to drift in the waters of forgetfulness. Although the methods of producing general anæsthesia are well known by every physician. I illustrate here a little instrument, that was devised for obstetrical practice, which has rendered me valuable service on many occasions, for lancing felons, opening abscesses, etc. In obstetrical practice it is indispensable, as the patient can administer her own anæsthetic, which not only acts as a source of amusement, to occupy her mind during the ordeal, but also diminishes the pain of labor. The reservoir of this instrument is provided with a small piece of absorbent cotton or gauze, which is saturated with chloroform. By placing the inhalation tubes in each nostril, she is allowed to inhale the anæsthetic until

she, involuntarily drops the instrument. The distal end of the instrument is provided with a cap which, having two rows of perforations, by this means the anæsthesia can be regulated, by allowing more or less air, as is desired. This is an exceptionally convenient means of having the patient administer her own anæsthesia, and no harm can be done, because she cannot hold the inhaler long enough at a time, to receive too much of the anæsthetic, and has the double advantage of occupying her mind and relieving pain. There are many cases presented in office practice, in which this means of producing anæsthesia is commendable.

Solidified Carbon Dioxide and Liquid Air

It was during the International Congress of Dermatologists, in 1908, that the use of liquid air was publicly announced as a valuable agent, in the treatment of certain malignant and cutaneous affections; this created widespread interest with the medical profession. However, the general introduction of liquid air, for therapeutic purposes, is impracticable, because it has so many disadvantages connected with its use and manufacture. It is not a medium in great demand for commercial and industrial purposes, and it is, therefore, difficult to obtain the product without securing special apparatus for its manufacture. For this reason, carbon dioxide snow has superseded liquid air; although there is some difference in their physical properties, it belongs to the same therapeutic family, and their analogy was first fully demonstrated by Drs. Dade and Whitehouse. The process of manufacture and supply is so simple with carbon dioxide, compared with liquid air, that the latter product has been nearly abandoned in therapeutics.

The temperature of liquid air is, approximately, 310 degrees F. below zero; while carbon dioxide is only 110 degrees F. below zero. With this great difference in degrees of temperature, one would naturally think their physical properties would be correspondingly changed, but such is not the case. Carbon dioxide seems to possess just a sufficient amount of cold to accomplish the results desired, and the process of freezing is sufficiently low to act as a positive destroyer of tissue, without being so rapid as to prevent an intelligent observation of the progress of freezing. In fact, it has been found that carbon dioxide, in loose crystals, produces a more rapid freezing action than the solidly compressed carbon dioxide ice; therefore, in most cases, the solidified carbon dioxide, or carbon dioxide ice, (as it is more frequently called), is often preferable to the snow or liquid air, as we have better control of its action. The two factors which determine the results to be achieved are the degree of pressure, and the duration of the application.



METHOD OF FILLING THE CRAYON.

The method of preparing solidified carbon dioxide for therapeutic purposes is rather an easy matter. Carbon dioxide gas is supplied, for commercial purposes, to all soda water counters, and may be found at almost any drug store, for the purpose of supplying carbonated beverages. These receptacles are furnished to the trade in 20 and 50-pound tanks, under a pressure of about 1,000 pounds to the square inch. On opening the tap of the cylinder, the liquid carbonic gas escapes, and evaporates so rapidly that intense cold is produced, which freezes the liquid into a soft snow. There have

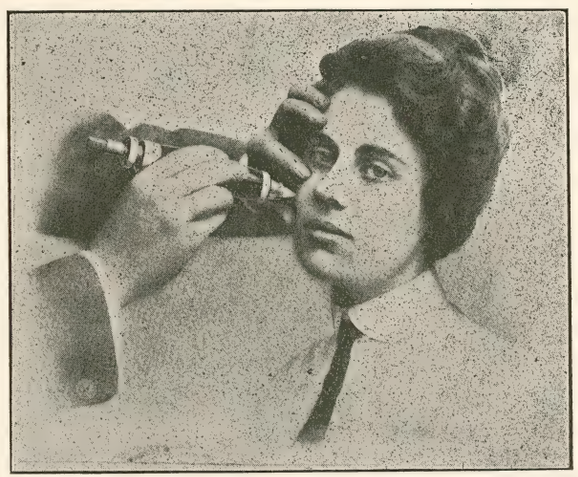
been several special apparatus devised for the purpose of accumulating this snow; of these, the Goosmann apparatus is perhaps the most popular and convenient, for all general use. This outfit consists of a specially constructed crayon, which will fit any gas cylinder. To fill the crayon with ice it is attached to the nipple of the cylinder, and as the gas escapes, the ice is formed and molded into suitable shapes for clinical use, (see accompanying illustration).

A very simple way of preparing a stick of carbonic acid ice, is to roll a huckaback towel around a cylindrical wooden stick, about one inch in diameter; remove the wooden stick, so as to form a cone, into which the ice crayon may be formed. Close one end of the towel cone, with a loosely fitting cork; the gas cylinder is placed upon the table, as illustrated above, with the delivery pipe pointed downward, and the foot of the tank raised about six inches, so as to allow the liquid contents to flow toward the tap. The open end of the towel cone is placed over the tap, and the cylinder valve is opened, gently; as the carbonic acid gas escapes and evaporates into the cone, it will pass through the escaping channel, and the snow will be formed in about thirty or forty seconds. The cylinder valve may be closed and the snow molded in shape for clinical use.

TECHNIQUE OF APPLICATION.

After securing the solidified carbon dioxide, by the foregoing processes, its application to diseased surfaces is simplicity itself. The carbon dioxide is suitably shaped, at the point, in the form of a pointed or blunt crayon, to correspond with the size of the diseased surface. In small surfaces, as warts and moles, the contact surface would be smaller than it would be for treating an epithelioma, one inch or more in diameter. The solidified carbon dioxide is applied to the disease by firm pressure. This was formerly done in one operation, which lasted twenty or more seconds, but as we have become acquainted with the destructive influence

of this element, most operators prefer shorter freezing periods, frequently repeated. To illustrate: if we had a surface, four inches in diameter, to be covered, this could be divided in areas, of one inch in dimension, and instead of attempting to treat the entire surface with one application, prolonged to thirty or forty seconds, we would treat each division of the areas about five sec-



METHOD OF APPLICATION.

onds; after each section had been thoroughly covered, we would commence at the first, and repeat the treatment, until the areas had been treated from six to eight times, or until the required destruction of tissue was completed.

This method always allows a better observation of the freezing process, and the gradual development of the inflammatory progress, and is always the method to pursue in treating large areas. Small surfaces, like warts, and moles may be treated with one or two applications, as desired. It is always well to cover slightly more than the defective area, especially in warts, moles, and cancerous growths.

In order that we may be sure of destroying every remnant of the disease, when the solidified carbon dioxide ice is applied to living tissue, it will be found that the treated area is, at first, more pliable, and in a few seconds, becomes firm and dense; when the crayon is removed, the area treated will be found depressed, white, and hard, showing that the freezing process has been complete.

The physiological effects of the frozen area will depend upon the length of time of the exposure, which may result in a simple erythema from a short application, to necrosis from a prolonged treatment. Raw surfaces respond with free exudation. Upon removing the crayon, the surface rapidly thaws out, and returns to its normal state, and sets up an inflammatory reaction, which is accompanied by considerable swelling; a wheel and vesicle follow, usually within a short time. The vesicle may be opened to allow the escape of fluids; within a few days, the frozen surface will form into a crust, which should be allowed to remain until it exfoliates spontaneously. Any simple dressing may be applied, but it is better to keep dry and exposed to the air. The crust will desquamate, in from ten days to two weeks, and the underlying surface will be found smooth, and of delicate pink color, which gradually, resumes nearly the normal color of the surrounding skin, in a short time, providing the destruction of tissue has not been too deep.

The cosmetic effect of this method, as a rule, is superior to any other manner of treatment, when used as a destructive agent, and by its careful use, the resultant scar tissue is so slight as to be almost unnoticeable. The treatment is nearly painless, and only the most nervous patients will complain of suffering any inconvenience at all. A slight tingling sensation will be felt for about ten minutes after the application; this rapidly disappears, and the little pain and discomfort is so slight from this treatment, compared to other destructive agents, that the results are more than gratifying to both the patient and operator.

THE THERAPEUTIC USE OF SOLIDIFIED CARBON DIOXIDE.

There has not been a therapeutic agent introduced in medicine, within the last ten years, which has a broader scope of usefulness than solidified carbon dioxide. As a destructive agent, it stands in a class alone, and has no equal competition, when its superior qualities are considered. Its rapidity and certainty in action, with the minimum amount of pain, are the three redeeming features, which place this agent at the highest pinnacle of merit, and when we survey the field in which this agent is applicable, we can better appreciate its value; there is hardly a cutaneous lesion in which this agent may not be used to a good advantage, while there are many neoplasms within the cavities of the body, which may be reached and removed by this therapeutic measure. It is one of the best means of treating skin cancers, and wil laccomplish, in a few seconds, the same results which require several hours of continuous suffering by plaster, and other means. It is the treatment, par excellence, for navi, lupus, rodent, and tuberculous ulcers, and may be successfully used in the treatment of superficial and deep seated epithelioma, warts, moles indurated eczema, X-ray burns, pigmentary and hypertrophic congenital deformities, papilloma, skin tumors, and tattoo marks. Many diseases and growths may be reached through the orifices of the body, which involve the uterus, rectum and nasal canal. In fact, there are many conditions, too numerous to mention, which will yield to this treatment. These conditions will be further discussed in the following pages:

A SUBSTITUTE OF SOLIDIFIED CARBON DIOXIDE.

Whenever we have well founded facts regarding any therapeutic agent, there is someone to present a substitute ,and carbon dioxide snow has met with the same fate. Dr. G. Knauer, has introduced Trichloracetic

acid, for superficial cauterization, as equally as efficient, and much less expensive, and simpler in technique than the carbon dioxide treatment, but great care should be exercised that none of the acid touches the healthy skin; it is, therefore, always best to paint a zone of collodion around the affected area. The acid should first be liquefied with one or more drops of water, then applied with a glass rod, of which various sizes are kept on hand.

The cauterization is always very superficial, unless the acid is actually rubbed into the tissues. A second application is rarely necessary, and should be postponed until the scab has fallen off. The cauterized tissue will appear white as snow, and the surrounding area will show only a moderate hyperemia. Vesicles never form, and the cauterized area will turn brown after several hours. After eight or ten days, the scab can generally be loosened. The cosmetic results are excellent, and the scars appear like those after the carbonic acid snow treatment, and are much sightlier than those after cauterization, while there is hardly any pain during the application.

Trichloracetic acid is indicated wherever carbonic acid snow may be used; except, that the latter is more convenient to use, when large areas are to be cauterized. This is a most excellent means of removing warts, small birth-marks, etc., and its convenience in application should recommend it for a large class of conditions.

Painless, Bloodless, Sutureless and Scarless Surgery

The above caption may appear as an exaggeration or perhaps a prevarication of facts regarding modern surgical methods; yet these means of operating may be accomplished or nearly perfected by adopting the following procedures:

BLOODLESS SURGERY.

It is not only a great advantage to the surgeon, while operating, to cause the loss of as little blood as possible, for this continuous oozing of blood is a source of annoyance during operative procedure, but it is also an advantage to the patient; not that the loss of blood will always be great, but many patients would withstand operations much better if it were not for the sight of blood. It is, therefore, always best to have all operations as devoid of blood as possible. When the operative field is upon the extremities, we have absolute control of bleeding, by the use of an Esmarch Hæmostatic Bandage, but when we have the flat surface of the balance of the body, it is a different proposition. We do, however, have a decided control of hemorrhage, on superficial surfaces, by the use of adrenalin solutions, of various strength; these solutions may be incorporated with the selected local anæsthetic, or used independently, as desired. The adrenalin, added to ,or used in conjunction with, cocaine eucaine, or quinine and urea hydrochloride, adds to the anæsthetic value, in making the anæsthesia more profound, and also avoids the depressive effects of the

anæsthetic, as adrenalin is a pronounced heart stimulant. My experience has convinced me that the addition of adrenaline chloride, in the solution of 1:1,000 to 1:20,000, has a distinct value in all minor operative surgery.

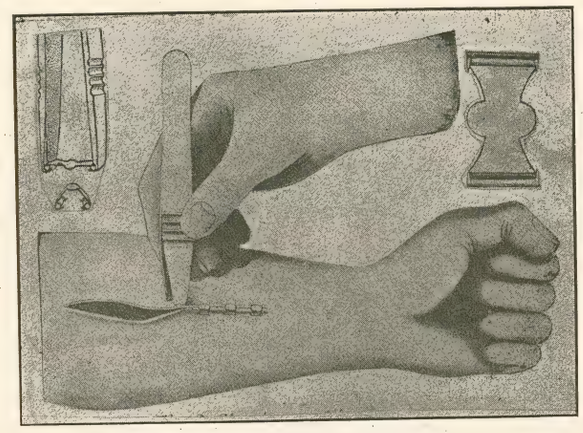
The strength of the adrenalin solution will depend upon the size of the surface to be operated upon; the smaller the surface the stronger the solution. As a rule I frequently dilute the three per cent cocaine solution, given in the preceding chapter, with one-fourth part of a 1:1000 adrenalin solution, and the results are most satisfactory; however, if larger surfaces are anæsthetized, I alternate the injection of quinine and urea hydrochloride with an adrenalin solution, from 1:2,000 or even 1:5,000, and obtain equal results.

SUTURELESS SURGERY.

With a view of uniting cutaneous surfaces, to avoid the formation of as little cicatricial tissue as possible, has introduced into surgery a new method of uniting wounds, without the use of sutures. Every surgeon is familiar with the fact that the penetration and tension of ordinary sutures are followed by minute indentures, which are filled with cicatricial tissue, after the removal of the suture, and to avoid these unsightly stitch holes, which are often more objectionable to the patient than the line of incision itself, wound clips are used. These clips are made of solid silver, which may be thoroughly sterilized by boiling, and offer many advantages over the ordinary sutures, viz.:

If care is exercised, they will unite wounds with the greatest degree of accuracy in the apposition of the cutaneous edges, and thus reduce the formation of resulting scar, since there are none of the cross marks made by the thread passing from one needle hole to another, and no perceptible trace of their contact with the skin, as they do not puncture the cuticle deep enough to leave a scar. They are much more

easily and quickly applied, as the four fangs of each clip will accomplish the results of two stitches in one-half the time it takes to use the older method. Also, they leave a flat surface, thus facilitating the application of bandages and dressings. Perfect asepsis is assured, since germs find no opportunity of following the suture tract into the depths, and therefore, there is no oozing around stitches, which are invariably filled



APPLICATION OF WOUND CLIPS.

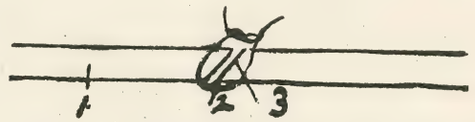
with cicatricial tissue after operations. The application of these clips is practically painless, and never requires an anæsthetic to close a wound.

SCARLESS SURGERY.

Surgeons, like all other fine mechanics, endeavor to have their work appear as if it were accomplished by a master hand; and in manipulating the human mechanism, to unite cutaneous surfaces, has given them an opportunity of displaying their skill; therefore, the scarless surgeon is in as great demand as the painless operator.

This method of reducing scar tissue to the minimum is said to have originated with a Japanese surgeon.

The usual way of incising the skin has always been at a right angle, but such incisions are always followed by a lineal scar, which is difficult to entirely obliterate; but, making the incision in a slanting position (see illustration) at an angle of about forty-five or more degrees will give better contact, and although the process of healing is the same, the fibrous and scar tissues is hidden from observation. If this method is carefully conducted, the resultant cicatricial tissue is reduced to a minimum. This is always the method used upon the face, and other parts of the body, where scar tissue is objectionable. Of course, it is impossible to entirely avoid the formation of some scar tissue, but after reducing its formation, by this means, to the smallest possible amount, the balance may generally be obliterated, after healing, by what is known as the



1. SKIN. 2. LIGATURE. 3. LINE OF INCISION.

blending process. This consists of pinching a fold of skin, containing the scar, between the thumb and finger until the skin is tense and rubbing the scar violently, almost to the point of drawing blood, with the forefinger of the other hand, using any suitable massage cream for the purpose. This keeps the skin somewhat irritated, and by repeating the treatment a number of times, the scar tissue will gradually fade away, although it may take several weeks or months to accomplish the desired results. You may also use Thiosinamin by Cataphoresis as described on another page.

ILLUSTRATIVE CASE.

In order that I may illustrate the success obtained by the foregoing methods I will cite the following case: Mr. H—— applied to me to have a lipoma removed on

his neck, directly back of the ear. This tumor had been developing for about two years and had obtained about the size of a small hen's egg. I injected the surrounding tissue with the following solution:

Cocaine .....½ gr.
Quinine and urea hyprochloride.....2 gr.
Adrenalin (1.1000 solution).....13 Min.
Aqua dis.....q. s.....2 dr.

This solution was injected along the median line of the incision, and at several points around the tumor until the pricking of the knife would cause no pain The two central incisions were made at an angle of about 45 degrees in the same direction, leaving about one-half inch space of skin in the center intact, so that when uniting the wound there would be no superfluous skin. The tumor was now carefully dissected away without rupturing the sac and the edges of the cutaneous surface placed in as close apposition as possible, and united with the wound clips. The operative procedure and final results were almost perfect. The patient did not complain of any pain during the operation. The adrenalin solution reduced the hemorrhage to the minimum. The skin healed with only a trace of cicatricial tissue and there was absolutely no trace of scar tissue where the wound clips had been applied, and represent surgery in what I consider its most perfected form.

Neoplastic Surgery

THE USE OF PARAFFIN.

The introduction of paraffin into the domain of surgery has added another term to the nomenclature of the science, under the name of "Neoplastic Surgery," which was, perhaps, to identify the use of paraffin for scientific purposes, and differentiate and mystify its purpose, from its more common use in candles and chewing gum.

Paraffin has quite an extensive field of surgical usefulness, and every physician should become familiar with the technique of manipulating this neutral substance.

Paraffin injections are used for two principal purposes: to make cosmetic improvements, and as a support for functional derangements; therefore, we find its use indispensable in "saddle back" nose, and to fill out other hollow places, to add to the contour of organs and expressions; its supportive influence is used in hernia, insufficiency of vesicle and anal sphincters, prolapsus of the uterus, paralysis of the soft palate; it has also been used to prevent ankylosis, after resection and filling, in brain defects, and a variety of other conditions.

PREPARATION OF PARAFFIN.

Paraffin was discovered by Reichenbach, in 1830, who derived its name from *parum,* too little *affinis* or *affined;* because the product was not attacked in its cold state, by concentrated sulphuric and nitric acids. The product may be obtained, in large quantities, from the dry distillation of peat, turf, coal, etc., rich in hydrogen. There are a large number of products

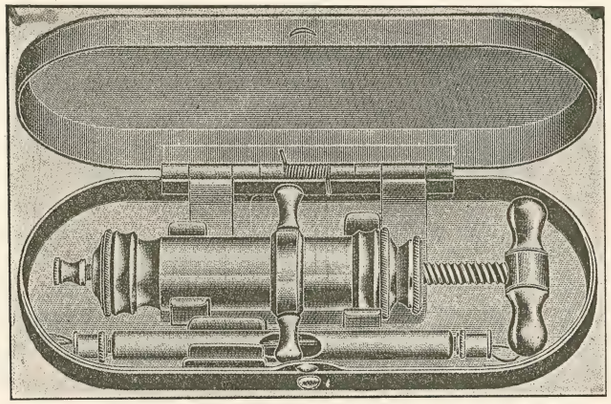
which belong to the paraffin groups, many of which have been trade-marked, under the names of vaselin, cosmolin, albolene, etc. These are all, practically graduations of the same body in a different consistency. They are all absolutely non-irritants, and neutral as water, the alkalies and acids have no action upon them, and therefore, when injected into living tissues, they have only slight, or perhaps, no reaction with the tissues of the body, and only act as a bland foreign substance. Therefore, it is particularly adapted for the special purpose it is used.

If we would study the different chemical products of the paraffin groups, from Hexadecane to Dimyricyl, we would find their melting points varying from 64 degrees F. in the former to 215 degrees F. in the latter Hard paraffin (paraffinum durum), has a melting point from 110 degrees F., up to 166 degrees F., and there is no possible way of identifying the melting point of any paraffin unless it is tested, and the only way to obtain the product at the melting point desired, for any purpose, is to blend the hard paraffin with the liquid paraffin (paraffinum liquidum), frequently called liquid petroleum or albolene. By combining these two, we may obtain any degree of consistency we may desire. The melting point required for most operations upon the body will vary from 107 degrees F. to 115 degrees F., according to the resistance of the tissue, and several other conditions, which may be presented.

It is, therefore, always well to have paraffin of several degrees of melting points on hand, for different operations.

I generally have paraffin prepared at two standard melting points: one at 107 degrees F., and one at 115 degrees F., and by mixing the two, in the right proportions, I can approximately determine the melting point I desire between the two To obtain these two melting points, a small piece of hard paraffin is placed in a vessel of water containing a thermometer; this is very slowly heated, and by watching the thermometer at the

time we reach the melting point, we can determine the melting point of the hard paraffin, and by mixing this with the liquid paraffin we may obtain the exact melting point desired. This is rather a tedious process, and those who do not care to spend the time to prepare the paraffin, may obtain the preparation from surgical supply houses, but I have always deemed it a good policy to become familiar with the "tools of our profession," and prefer to make my own paraffin preparations.



PARAFFIN SYRINGE.

The next important thing to be considered in paraffin operations, is a suitable syringe, with which to inject and place the paraffin. There have been several syringes devised for this purpose, but the one illustrated here, has given me the best service. Under no consideration attempt to use paraffin with the ordinary hypodermic syringe, where direct pressure upon the piston is required to force the paraffin through the needle, for such procedures are always followed by disappointment. Paraffin, in a semi-solid state, is a very treacherous substance to inject into subcutaneous tissues, as the needle will invariably become clogged with the solid paraffin before the contents of the barrel are used, and when sufficient pressure is applied to force the opening through the needle, it will take a sudden spurt, and the contents of the syringe will be placed in almost any part other than where it is desired; therefore, the special syringe with a strong screw piston stem, we can force the paraffin into the tissues as slowly or rapidly as is desired, and always have the most accurate control of the distribution of the paraffin, and place it at exactly the points desired.

TECHNIQUE OF USE.

In ninety percent of all paraffin operations the melting point of the paraffin has been from 110 to 115 degrees F. This, having been previously prepared, is now placed in a glass receptacle and boiled in a water bath for ten minutes; the syringe has also been sterilized by boiling, and the surface of the operation, and the hands of the operator, are prepared with the same care as for any other surgical procedure.

To fill the syringe, the cap is removed, and the barrel filled from a medicine dropper, by taking the paraffin from the center of the boiling solution. This avoids the scum and other floating particles, which are sure to be found upon the surface of boiling paraffin After filling the barrel of the syringe, the cap is screwed on tightly, and the needle is pointed upwards, and sufficient pressure made upon the piston to force the paraffin through the needle. The paraffin is now encased in a hermetically sealed receptacle, and is ready for use at the present, or may be used several days afterwards, by simply placing the syringe in warm water, to partially melt the paraffin, so that it may be ejected through the needle.

I always prefer to use paraffin when it has cooled to a semi-solid state, as I have always found it more easy to manipulate and mould when placed within the subcutaneous tissues; it also avoids the danger of using the paraffin when too hot, and thus creating damage to

the tissues, a mistake which has been made by many operators. "There is never a day so bright that it may not be marred by clouds of darkness," and this is true with the use of paraffin, which, if properly used, will give the most excellent results; but, if used injudiciously, will be the means of doing much damage.

It is, therefore, well to become familiar with some of the detrimental influences which may take place by the use of this preparation.

Injections of paraffin of too high temperature may create inflammation which would result in sloughing; likewise, sloughing may be induced from infection, or by creating too much pressure upon a given part, and interfering with the blood supply by an over amount of the paraffin.

Wassermann reported a sad experience of necrosis, due to this cause, in a case of saddle back nose, which was only restored by skin grafting.

Deformities from over injections have frequently been reported, and it is always well to bear in mind that, after the injection of paraffin there is more or less swelling, and when the reaction subsides, it will leave the tissues somewhat thickened; this should always be allowed for, and just sufficient paraffin used to not quite fill the cavity, or depression, and the formation of the post operative tissue allowed for. It is, therefore, better to complete the operation with another injection than to dissect the paraffin away after it has been placed.

Embolus and Thrombosis are also conditions which may follow the injection of paraffin. While there have been quite a number of cases reported, the percentage is very low, considering the extensive use of this preparation, and in almost all cases, the cause was attributed to using the paraffin at a too low melting point

DISPOSITION OF PARAFFIN.

When paraffin is injected into living tissue, the question naturally arises: in what way is this foreign substance treated, and what changes take place? There has been much controversy regarding this point. Gersury states: "A few hours after injection the conditions are entirely changed; a small celled infiltration sets in, and the paraffin, like any foreign body, is encapsulated, and new tissue fibers grow through the mass, so that a specimen, taken from the injected area, resembles an inflamed lipoma." Jakuff says: "The paraffin globules are grown through like a sponge, and are formed into a mesh-work."

Morton states: "New connective tissue and new blood vessels permeate the mass of paraffin. The fact is, these physicians were, no doubt, honest in their convictions, but erroneous in their conclusions, for when paraffin is injected into the tissues it is not left in one mass to be intersected later by any form of tissue, but the force of the syringe will cause the paraffin to follow the channels which offer the least resistance; in this way it is dispersed in such a manner that specimens examined some days later gives it the appearance as though the paraffin has been intersected by tissue, with an attempt to reorganize; but specimens removed a few minutes after being injected will have the same appearance, which proves, conclusively, that the intersection takes place at once; therefore, we find the paraffin deposited in minute channels, and also globules, of greater and lesser size, where tissue has been ruptured in mass and allowed such deposits. Nature takes care of this, as it would any inert, foreign substance; but during the process of reorganizing, there is some inflammation, which, upon subsiding, will cause the tissues to hypertrophy (which should always be allowed for), and the greatest caution should always be exercised in injecting paraffin as stated above. It will follow the course which offers the least resistance, and in this way, will often start in exactly the opposite

direction in which you are aiming. It is for this reason, which will require, in most instances, the services of a reliable assistant, to make pressure with his two hands upon surfaces you are trying to protect.

There will be much said regarding the use and technique of manipulating paraffin, in the following chapters, when the details will be more fully explained, but the foregoing are the fundamental principles upon which the therapeutics of paraffin are based, and by carefully observing them any physician will be able to use this valuable agent in surgical procedures, where it is indicated.

Cancers, Tumors and Morbid Growths

If we would consider tumors as a specialty, in relation to the frequency in which they are found upon the human body, we would find this field abundantly supplied with clinical material for the Specialist It has been conservatively estimated that there are, at least, four abnormal growths, on an average, to every adult person, which comes under the category of tumors, and it is doubtful if there is a single person in the world whose skin or body is entirely free from some blemish which does not come under the classification of tumors, while the percentage of cancerous growths invades our bodies to an appalling extent. Authenticated statistics have proven that every eleventh man and every eighth woman, over forty years of age, is afflicted with cancer.

Cancer is rated as the seventh of deadly diseases, and in England more women die from cancer than from consumption. It will, therefore, be seen what a wonderful field tumors alone offer to the office specialist who acquires a knowledge of their character and can successfully remove these growths by the modern method of treatment.

CYSTIC TUMORS.

Nearly all cystic tumors are circumscribed, smooth, movable, and of slow growth; they are painless and fluctuate upon pressure. The skin is unchanged in color, but translucent, if superficial. Aspiration will determine the presence and character of fluid. Cystic

tumors may appear upon the scalp, as in wens, or the mucous membrane, as in renula, or along the tendons, or in some natural cavity, as in ganglia. Their location has much to do in determining the diagnosis. Unless seated in some internal organ, cystic tumors rarely cause any trouble, except by weight and size; if thoroughly removed, as a rule, they will not return

CLASSIFICATION AND DIAGNOSIS OF TUMORS.

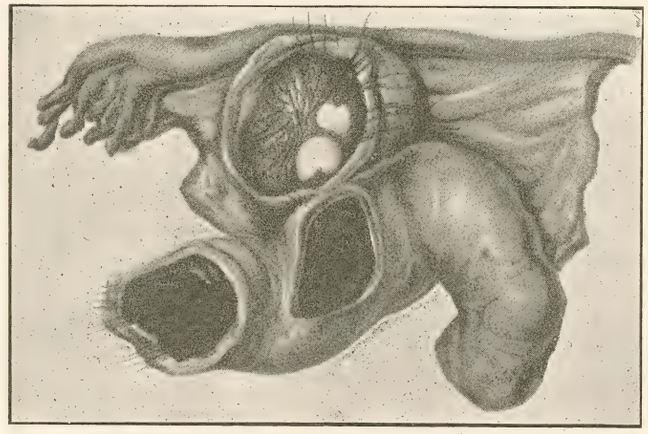
When a patient is afflicted with an abnormal development, the first thing to be determined, by the physician, is the character of the growth, and to ascertain if the formation is a benign or malignant development. There are twenty-three well defined types of tumors, of which five are cysts, and the remaining eighteen are solid or semi-solid tumors. Six of the eighteen solid tumors are malignant, and classed as cancers. The use of the microscope is, of course, the only accurate way of determining the exact nature of these growths, which may be developed from a single, or different, cell tissue, in the formation of what may be known as "mixed tumors;" for instance, the lympho-sarcoma, etc., (illustrated on a following page).

The following is the classification and character of cystic tumors:

Retention Tumors are formed by the distention of glandular sacs or ducts, with the occlusion of the exit, as sebaceous and mucous cysts. The closure of the ducts, which is always the cause of the formation of these tumors, may be due to the pressure of inflammatory swelling, cicatrization, the inspissation, and concretion of the natural discharges at the mouth of the ducts. The closure of the orifice does not stop the secretion; rather, the irritation increases the action, and a large amount of material collects. The walls consist at first, simply of the sac, but as the tumor increases in size, a firm, fibrous tissue may be added to it.

Exudation—Tumors are formed by the accumulation of the contents of pre-existing, closed cavities, as ganglion, hydrocele, ovarian cysts, etc. The cavities, out of which these cysts are formed, have naturally, a small amount of fluid, but as the result of inflammatory action, a superabundance of fluid may be poured out, and a tumor is formed. The contents vary according to the natural fluid of the part, and age of the tumor, from a clear, colorless fluid to an almost solid substance

Dermoid Tumors are formed in cavities, due to arrest of development, and contain no excretory duct; they are



DERMOID TUMOR OF OVARY, SHOWING HAIR AND BONE WITH OPENING INTO RECTUM.

congenital. The contents are fine hairs, embedded in a thick, tenaceous matter. Sometimes there is found bone, cartilage, teeth and other structures.

New Formation Tumors are formed by cystic degeneration of the corpuscles of connective tissue; many of the larger cysts of the ovary, kidney and thyroid, as well as cysts in tumors, are probably, formed in this way; such cysts often grow with marvelous rapidity.

HYDATID—These tumors contain an entozoon parasite, or vesicular worm, inclosed in a distinct, separate sac. The tumor resembles an ordinary cyst, except for the presence of the little parasite, and occurs more frequently in the liver, ovary and uterus. This tumor is very uncommon in America, but when it does appear, is very short-lived, as suppuration of the sac takes place, and the contents escape. If this occurs to internal organs, it may produce death, by the excitation of inflammation; usually, the sac ruptures, and the contents are discharged through some natural passage. When in the kidney, with the urine; the lungs, with the sputa, and the liver with the fæces.

TREATMENT OF CYSTIC TUMORS.

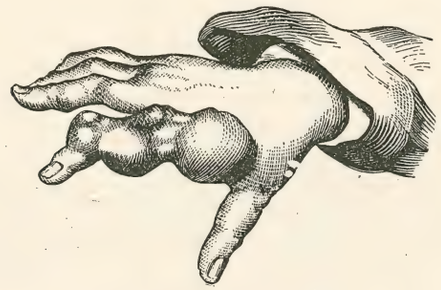
The ordinary retention, dermoid, or extravasation cyst, is best treated by excision or enucleation. If in close relation with important structures, the cyst may be incised, the contents removed, and the surface of the sac thoroughly cauterized or scraped, and then left to heal by granulation. Exudation cysts may be treated in various ways; the ganglion, by rupture or subcutaneous puncture, the bursa, by puncture, and the injection of iodine, the hydrocele, by the straight incision, by aspiration, or by aspiration and the injection of iodine.

SOLID AND SEMI-SOLID TUMORS.

LIPOMA—This tumor is composed of fat, resembling normal adipose tissue, and appears to be spontaneous in origin in most cases, but in some, it is clearly traceable to injury, irritation or pressure; the growth is usually slow, many years elapsing before the tumor becomes especially noticeable; may sometimes be multiple, but do not appear simultaneously. The different tumors have no direct relationship to each other, being entirely local. They are more frequently found in the back and shoulders; soft and doughy, semi-elastic, and

of uniform consistency, with a lobulated surface. When under the skin, the integument appears dimpled. This tumor is indolent in disposition, painless, with no enlargement of the subcutaneous veins.

FIBROMA—This tumor is composed of tissue resembling normal fibrous tissue, such as forms tendons or ligaments, and may originate in the connective tissue of any part of the body, but occurs most frequently in the testicle, ovary, nerves, mammæ, uterus, and bones



CHONDROMA OF FINGER.

of the upper and lower jaw. It is not peculiar to any age, but occurs most frequently in young adults. The tumor usually grows slowly, but may, eventually, attain a larger size; it commences as a hard, firm nodule, developing slowly; is painless, hard, firm, inelastic, and of uniform consistency. Movable, unless it springs from the periosteum. Its tendency is to increase, to impair function, and, when located in some internal organs, to wear out life by its secondary effects. Does not return, if thoroughly removed.

CHONDROMA—These tumors have the composition of tissue, resembling cartilage, and occur most frequently in connection with cartilage or bone. Of cartilaginous origin, the septum nasi and costal cartilage are most frequent. The femur, tibia, clavicle, humerus, bones of the fore-arm, phalanges, and innominate bones produce most of the chondroma which originates from bone.

Young persons are more frequently attacked than adults. Nearly all tumors of this class commence during childhood. The growth is slow, the tumor rarely attaining a large size. It is very prone to ossify, most frequently in the skeleton, as in the metacarpal or phalangeal bones. Firm, solid, destitute of elasticity. Circumscribed, usually lobulated, or marked by irregular prominence and depressions. Painless, usually of slow growth, and cause inconvenience only by weight and pressure. May undergo cystic, fibrous, or osseous, transformation. Its gravity depends upon the size and location. Does not return, if removed.

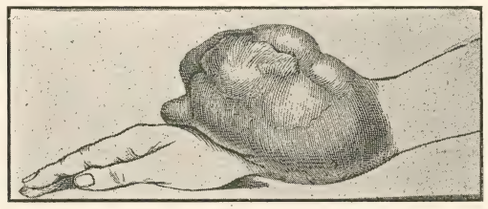
Osteoma—The composition of these tumors has a resemblance to either hard or cancellated bone; they grow, almost exclusively, from the skeleton, but have been found in the interior of the brain, the eye, the lungs, and other unlooked for places. Are usually, found at, or about, the junction of the epiphyses with the diaphyses of long bones, when the increase in length of bone is affected, and like the chondroma, are most common in early life. Two varieties are found, the ivory and the cancellated; the former grows, usually, from the flat bones, and the latter from the ends of long bones. There may be one or more tumors; sometimes there is a veritable diathesis, bony tumors being found in every bone of the body. The growth is very slow, the tumor rarely attaining a large size; their favorite location is the thigh bone, orbit of the eye and upper jaw; they are hard, immobile, and present a rounded, nodulated surface, with a broad base, and slow, painless growth; as a rule, they do not grow to a large size, unless they interfere with other organs.

Lymphoma—This tumor has the composition of tissue, resembling that from which lymphatic glands are formed; they originate in adenoid tissue, separated from the parent tissue by a capsule. Grow slowly and without pain.

The number of tumors which present these characteristics is very small, microscopic investigation, almost

invariably, showing the presence of tubercle; they are, therefore, often difficult to distinguish by appearance from tubercular affection of the gland. The enlargement is in the neighborhood of lymphatic glands, but does not depend on tubercle or syphilis; they are perhaps slow in progress, and maintain the original form of the gland. A pure lymphoma will cause little trouble, but the uncertainty which exists, regarding lymphatic enlargement, makes the diagnosis and prognosis doubtful.

Myxoma is composed of imperfectly formed mucous tissue, and develops in the subcutaneous tissues; in the



MYELOID TUMOR OF RADIUS.

nose, as polypi, in the salivary glands, in the intermuscular tissue, and in the mucous cavities generally. Is found most frequently in adult life, in the shape of distinct, separate tumors. The growth is usually slow, and the vitality low; the diagnosis is often difficult, before extirpation, except when it occupies a mucous canal. The tumor is slow in developing, soft, movable, causes no discoloration of the skin, and does not affect the general health, except by the size; as a rule these growths are innocent, but they often exhibit malignant traits which will bear the closest watching.

Myoma is a tumor composed of muscular tissue, and found most frequently in the uterus, kidney and prostate. As a rule, it does not develop until after the middle period of life. In some instances, as in the prostate, it seems to be merely a hypertrophy of the tissue it occupies, while in others, as in the uterus, it may

take the form of a polypus, or pronounced tumor. May occur in the œsophagus, stomach, intestines, the heart, the lungs, and the voluntary muscles, but its favorite seat is the prostate or uterus. Is tardy in growth, and were it not for the important organs affected, would cause little trouble.

It is almost impossible, at times, to distinguish a myoma from a fibroma. External myomas, as a rule, are so rare and the treatment is the same; the differential diagnosis is unimportant.

Angioma consists of a network of small blood vessels, held together by a minute quantity of alveolar tissue; this tumor is generally a malformation, having its origin in an abnormal dilatation of the blood-vessels; occasionally, it results from injury. Is met with as a congenital affection, being of small size at birth, and then growing more or less rapidly. The ordinary locations are the skin and mucous membranes, especially about the head, face, the eyelids, cheeks and tongue. The color varies from bright scarlet of the arterial angioma to the bluish or purple hue of the veinous tumor.

In the arterial form, the convolutions of the vessels may be easily made out through the skin; the smallest pulsates regularly, and often with considerable force. The pulsation cannot be controlled by pressure on a single artery. The veinous variety is of a deeper purple color, which has given it the name of "wine mark;" this birth-mark will be more thoroughly discussed in another chapter, to which you are referred.

Lymphangioma—These tumors are analogous to angiomas, only that they consist of a network of lymphatic, instead of blood vessels. They are, also, held together by a minute quantity of alveolar tissue. These tumors are generally congenital, although they may appear at any period of life. They are extremely rare, however, and found in the vessels of the scrotum, or lower extremities, in union with elephantiasis.

Neuroma—This tumor is composed, principally, of nerve substance, and is most frequently found on the

ulnar, radial, median, tibial and perineal nerves. The exciting causes are obscure. It may, however, be traced to a bruise or wound. The progress is slow, and rarely attains a large size. These tumors are very sensitive to the touch, and are attended with sharp, darting pains, increased by atmospheric changes; they do not affect the general health, unless very painful, and if thoroughly removed, will not return.

Papilloma—These tumors are composed of papillæ, whose structure comprises a basis or central stem of connective tissue, containing usually, a vessel, and a covering of epithelium; they seem to be the result of chronic inflammation, or the irritation of long continued discharges. Is sometimes congenital. Occur most frequently in young persons. Develop on surfaces which are naturally papillary, and is merely a hypertrophy of the natural papillæ. It may take on different forms, according as it arises from mucous or cutaneous surfaces, or depending upon the predominance of epidermal or papillary growth; they are known by their wart-like appearance and distinguished from superficial sarcomas, and true epithelomas, by slower growth, by the lack of induration of the skin, and the absence of ulceration. The only fear of warts is the possibility of their developing into an epitheloma; when in the bladder, or larnyx, the outlook is more grave.

Adenoma—These tumors are composed of substances resembling a secreting gland; they arise without any assignable cause, and the method of formation is very similar to that of the development of the natural gland. They grow very slowly, and rarely attain a large size. They are elastic and circumscribed, and difficult to differentiate from fibroma, except by the use of a microscope. They are most frequently found in the breast and salivary glands, and if thoroughly removed, will not return.

MALIGNANT TUMORS.

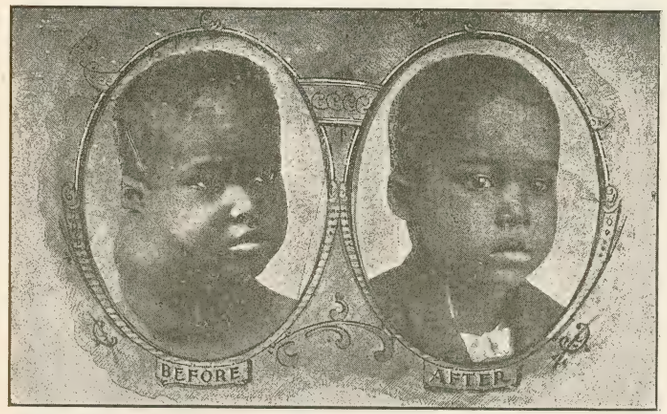
CARCINOMAS CANCERS.

While the above tumors are, as a rule, considered synonymous, they have been classified differently by different authors. I believe in the advice given by an old cancer specialist, who said: "Never refer to a malignant tumor as a cancer, but discuss the subject, before the patient, as a carcinomatous formation." The malignancy of these growths justifies the horror of the name "cancer." All the following cancers are generally classed as carcinomas, as their development takes place in the epithelial cells; there is one exception, however, in the sarcoma, which is composed almost entirely of cells that have their origin in those of the connective tissues, and which are embryonic in character. The following classifications of cancer may render some assistance in identifying the character of malignant growths.

SARCOMA—This tumor always has its starting point in the connective tissues. The cell element may exist separately, or in conjunction, in the same tumor. They may be either round, spindle celled, or in large, plate-like forms. The cause of these formations may be traced to local irritation, or external injury, but more frequently, develops spontaneously, from some unknown cause, between the ages of twenty and forty; although they frequently develop in younger persons. The growth commences by one or more nodules, and develops rapidly, involving the neighboring glands, which become incorporated in the seat of disease; finally, the tumor ulcerates, and, with the advent of ulceration, the pain is greatly increased and the system becomes infected, by involving the liver, lungs or other remote organs. The consistency of the tumor may be either hard or soft; depending upon the tissue it develops within. If in the bone, or periosteum it is hard, but in other parts of the body is soft and fluctuating; the growth is usually rapid and may attain a large size. Ulceration, as a rule, does not take place until late in

the life of the disease. The subcutaneous veins are only slightly enlarged. The microscope shows the composition of the tumor to contain a mass of connective tissues, without alveolar arrangement, and unless thoroughly removed, this tumor will rapidly develop, in the same place.

SCIRRHUS—This malignant tumor, which is also known as "stone cancer," and "atrophying cancer," is composed of undeveloped epithelial tissues; although



LYMPHO-SARCOMA.

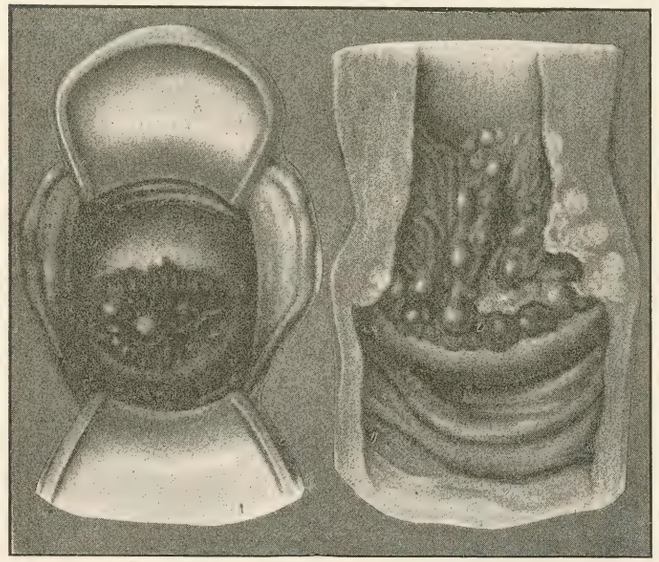
this tumor frequently follows injury, and continued irritation, from low forms of inflammatory processes, as a rule, it appears spontaneously, from unknown causes. It is more frequently found in the female breast than in any other organ, although the uterus and liver are favorite seats for this growth. It is very rare for this tumor to make its appearance before the fortieth year of age. When this tumor is found in the breast, it will be noted as a firm, hard, dense, nodule, under the skin, firmly anchored to the integument; and, as development progresses, it connects adhesions to the surrounding parts, and becomes firmly fixed, hence the name "stone cancer." As the growth progresses, the pain increases.

The integument becomes infiltrated, and livid, and contains numerous blood vessels; if in the breast, the nipple is retracted. The tumor finally ulcerates, at the end of about one year, and the discharge is very offensive. The neighboring lymphatic glands become affected early in the disease, and the entire body involved in cancerous cachexias. Unless these growths are thoroughly removed, at an early stage of their progress, they result in death, in from two to four years.

ENCEPHALOMA—This malignant growth is often referred to as the soft cancer, rose cancer, cerebriform cancer, and also fungus hematodes. They contain less fibrous tissue, but a greater quality of epithelial cells, than the scirrhus. These growths will appear at any age of life, and are almost the only form of cancer, occurring in childhood. This cancer will attack any part of the body, but is more frequently found in the breast, liver, uterus, testicle, eye, bones and lymphatic glands. These tumors are extremely vascular in structure, and therefore, develop rapidly, extending their destructive influence over a large surface, in a comparatively short time. They commence by a single nodule, or several nodules may develop at the same time. They are usually soft, and fluctuating, easily compressed, and infiltrated into the surrounding tissues which it involves. They grow rapidly and attain a large size. The superficial veins are enlarged, the surrounding lymphatics are easily involved; ulcerates readily, with their undermined edges. With this event, the pain is greatly increased, which is dull and heavy in character. The constitutional symptoms are pronounced, and unless every trace of the growth is removed early in the disease, it will terminate in death, in eight months to two years, by exhausting the strength of the patient or destroying some important organ.

EPITHELIOMA—This cancerous growth is developed from the squamous epithelium, and is of more frequent occurrence than any other form of cancer. As its principal field of development is upon the skin and mucous

membranes, or at the junctions of these tissues, it is often referred to as the "skin cancer," or the "tobacco cancer," owing to its frequency at the junctions of the mucous membranes and skin of the mouth. This tumor is also found in the cervix uteri, tongue, vagina, anus, penis, scrotum, and the entire surface of the face and scalp are favorite seats for the development of this growth. While the skin or mucous membranes, or the



EPITHELIOMA OF CERVEX UTERUS. AT LEFT SPECULUM VIEW, AT RIGHT SECTIONAL VIEW.

junction of these tissues is the usual commencement of these cancers, their extension in growth will involve any of the structures of the body, either bone, muscle or cartilage. These tumors usually develop after the fortieth year, and are due to continuous irritation, as by a pipe, or cigar, in cancers of the lip, or corrosive discharges from the uterus, etc. These ulcerations may start from a simple crack in the lip, or a mole or wart

upon the face. When these cracks, incrustations, or tubercles appear, with an indurated base, and do not yield readily to simple means of treatment, they should be viewed suspiciously, as cancerous formations, and removed at the earliest possible opportunity; otherwise, ulceration may begin, and extend with the progress of the disease, and lymphatic involvement occurs; the natural development and growth of an epitheloma is not, as a rule, rapid, but a small, indolent abrasion may exist for months before the growth begins to attain a more rapid development, and with the exception of these tumors of the tongue and uterus, many years may elapse before a fatal termination.

COLLOMA: these malignant tumors, which are also often referred to as "Gelatiform cancer," resemble, structurally, the encephaloma, but contain, independent of other tissues, a large quantity of clear colloid material. This tumor is difficult to distinguish from other forms of carcinoma previous to its removal; on dissecting, the growth will reveal the gelatinous substance it contains. These tumors are most frequently found in the stomach, omentum, rectum, ovaries and bones of the extremities, either growing as a pronounced tumor, or taking on the shape of the organ in which it is situated, its general history is similar to that of the encephaloma, only it does not develop as rapidly, nor involve the lymphatic glands at an early period.

MELANOMA: these are another form of malignant growth, which resemble the encephaloma, but contains a large quantity of black pigment matter, and are therefore, often referred to as the "black cancer." This growth is most frequently found in the skin and eye, or may commence to develop underneath a pigmentary mole, and as it develops, bears every resemblance to the rete mucosum or colored skin; unless thoroughly removed, will terminate in death in a short time, as will all other cancerous formations.

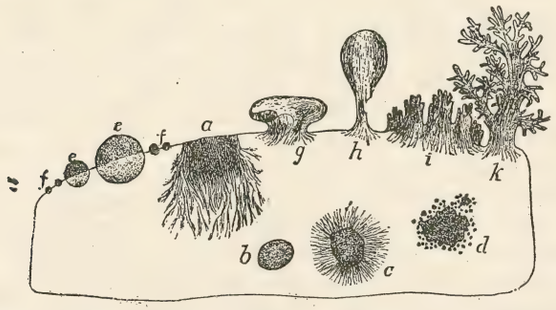
THE FORMATION OF TUMORS.

The forms under which tumors may appear are manifold, and give us no certain criterion as to their nature. In parenchymatous organs we either find them as sharply circumscribed nodules, or as infiltrations. In the nodular form the line between the tumor and the normal tissue is sharp, and we get the impression that the tumor grows as a solid mass, pushing before it and compressing the normal tissues. In the infiltrated form this line is not so sharp, and projections from the tumor seem to penetrate the normal tissue; by their growth the tissue between them is destroyed by pressure or by insufficient nutrition. In this way the central body of the tumor increases in size, and the infiltration continues to advance. Frequently numerous small nodules will be seen in the neighborhood of a large one. These increase in size, and finally meet the parent nodule, minute ones continuing to appear at the periphery. This is called growth by dissemination, and is best seen in the formation of the large solitary tubercles of the brain.

Tumors which are seated on the surface of organs, as in the skin and mucous membranes, soon project above the surface, and various names have been given to characterize the form of these projections. If the projection merely took the shape of a rounded elevation, a tuberosity was spoken of. The name tubercle was given to the smallest of these, though this name was afterward used to designate growths of a fixed histological character. When the tumors projected above the surface in such a way that the summit was broader than the base, and hung over it like a roof, it was called a fungous growth, and a polypus when the main body of the tumor was connected with the surface by a small pedicle. When the tumor was formed by a series of projections, like the papillae of the skin, it was called papillary, and when these projections were much longer and branched it was called dendrate.

The accompanying illustration outlines the manner of the development of tumors, relative to the tissue in which they grow.

We know but little about the growth of tumors. They have been more studied in their histology as completed structures than in reference to their development and manner of growth.



Scheme showing Forms of Tumors. a, Infiltrated; b, nodular form; c, peripheral growth by infiltration; d, by dissemination; e, tuberous form; f, tuberous form of military size; g, fungus; h, polypus; i, papillary and verrucose; and k, dendrate form.

There are two principal opinions held as to the manner in which tumors grow. One is that the growth takes place from the tumor itself, and the cells of the surrounding tissue play only a passive part; and the other is, that the cells in the neighborhood of the tumor change into cells corresponding to those of the tumor. This last theory has been variously modified. Some observers assert that the cells in the normal tissue, in the neighborhood of the tumor, first return to their indifferent or embryonic form, and then differentiate themselves into those of the tumor. Others hold that the change is direct without this intermediate process.

THE CAUSE OF CANCER.

If there is any one subject which has offered a rich and inviting field for deep study for the pathologist, it has been in the investigation of the cause of tumors, and especially the development of malignant neoplasms, and yet with all our present knowledge and theories, we are still wrapped in the shroud of darkness. However, clinical experience has taught us that there are certain conditions which seem to predispose to the development of these growths, which we will briefly review.

Investigating the location in which the greatest number of cancers develop, we find them located in organs which are subjected to irritation.

In a record of 9118 deaths from tumors seventy eight per cent were seated in the uterus, stomach, mammary glands and intestines; of these, twenty-five per cent were seated in the uterus, which had been lacerated by childbirth. In 219 cases of the so-called tobacco cancer, occurring on the lip, 209 were in men, and ten in women. In cancer of the lip it has also been noted that men from the lower classes, who smoke pipes, are more susceptible to cancer than those who smoke cigars, which are less irritating to the muco-cutaneous surface.

While these statistics are decidedly in favor of the irritation theory, on the other hand, the face of a man is more subject to irritating influences than that of a woman, from a variety of reasons, among which may be considered shaving, and yet cancer of the face is more common in women than in men.

In 344 cases of cancer at the Berlin Clinic, 42 were attributed to trauma; where special investigations were made, these cases were principally tumors of the female breast.

Several years ago, Dr. Keim advanced the germ theory, as the cause of cancer, and to-day extensive experiments are being conducted along these lines. London leads the world in facilities to study cancer;

this city has two cancer hospitals, and two research laboratories, with a large corps of able medical scientists.

Mice are used to a large extent for experimental purposes. Mice, like other animals, are subject to cancer: on an average, one mouse in every 3500 develops cancer spontaneously, and a mouse with a cancer is worth five shillings in London. If bits of cancer, the size of a pinhead are taken from a mouse with cancer, and implanted under the skin of one hundred healthy mice, in three weeks about five of them will have cancer; if grafts of cancer be taken from these five inoculated, and planted under the skin of a second hundred, healthy mice, in about three weeks ten of these will be cancerous; and, again, if grafts be taken from these ten and planted in the third hundred normal mice, about twenty will be affected with cancer, and these experiments may continue until ninety per cent will be affected. Cancer has not been communicated from man to mice, or vice-versa, and it has not been successfully proven that it can be transferred from one human being to another. Of course, these experiments cannot be conducted as recklessly in man as they can in mice, but they prove that the disease can be communicated in this way.

Tumors have long been recognized as hereditary, or we might say, there often exists a family predisposition to these formations. Napoleon, his father, brothers and sisters died of cancer. In some families, as well as some races, cancer appears to occur more frequently than in others. Broca has recorded a most interesting case, pointing to a family predisposition to cancer. The mother died of cancer of the uterus, her four daughters died of cancer; two of cancer of the liver, and two of the breast. The first daughter's four children died of cancer, the son with cancer of the stomach, and the three daughters of mammary carcinoma. The second daughter, from the first generation, had five daughters and two sons; the sons were not

affected, but the five daughters all died from carcinoma. Three were of the breast, and one from the uterus and one from the liver; all the above subjects lived to be thirty-five years old before cancer developed.

These are only a few instances, from hundreds of others, to prove that there is a predisposition, in certain families, to malignant growths.

Benign tumors, as a rule, develop at an early age, but carcinoma rarely develops until after thirty-five years of age, and more often at a later period in life. This is conclusive evidence that cancer is a disease of middle life, or old age; when occurring in younger persons, there is evidence of senile change in their skin and appearance.

THE TREATMENT OF TUMORS.

Within the last few years there has been such rapid progress in the therapeutics of tumors that we often wonder what will be the next development, in the scientific world, for the removal of these unwelcome visitors. The physiologic method of treatment has entered this field with a strong force of valuable accessory measures, and exercised a predominating influence in many cases, and the various forms of external growths, which were formerly looked upon as grave neoplasms, are now, apparently, regarded as simple lesions, as they are so rapidly and conveniently removed by modern therapeutics In the following pages, we will briefly survey the most important methods of treatment, which are used by the Medical Profession, of the present period.

The knife always has been and, possibly, always will be, the first means to consider in the removal of tumors, as it can be used to the best advantage in the greatest number of cases, and, in fact, is the only means we have at present of reaching internal growths. The possibilities of surgery are so well and favorably known for removing benign growths of the internal

organs, that the subject will not be discussed here, but surgery for the removal of malignant growths of the internal organs bears fruit from another harvest, and still it is the only means with which we have access to these developments.

Pozzi has reported 204 cases of hysterectomy for cancer, and states complete recovery is rare; one of his cases living ten years and another six years after the operation.

Cullen has reported 141 cases of cancer of the cervix, of which only ten were living. Massey has collected reports from 482 cases of cervical cancer, with only two living. Tubingen reports 35 per cent recovering from cancer of the extremities, and Schmidt gives a report 28.32 per cent cured from cancer of the breast by surgical means. We therefore, find that the knife does not offer us as much encouragement as we wish it would from Master hands, even if the greatest precautions are taken to cut wide, and remove every remnant of the growth. While the knife will be the dependent means of removing internal cancer, until the discovery of the much sought for "panacea," which the entire scientific world is striving to obtain, in the form of some serum. The advantages the knife offers, in removing benign superficial tumors, is the rapidity in which they may be removed, and the tendency to leave a less resultant scar. The latter is of especial advantage when these growths occur on the face or other parts of the body, where scar tissue appears to a disadvantage. The methods of removing these tumors are fully discussed on another page.

The medical caustic treatment for cancer, or better known as the "plaster treatment," in many localities, is perhaps, the second oldest and most universally adopted treatment for cancer in present use, and there are very few caustic remedies in the Materia Medica, which have not been used for the removal of tumors, and especially skin cancers. These caustic plaster treatments were ushered into the healing art under a cloud of darkness,

and as a rule, their originators held their formulas a profound secret, which many of them are attempting to do today, but the "tricks" of the cancer specialists, like many other things in medicine, have ceased to exist, and are the common property of the medical profession.

The first caustic remedy to be successfully used in cancer was chloride of zinc. This remedy was the secret which monopolized all the cancer pastes for over fifty years, and it is my opinion that it stands second in value today. As near as we can trace the history of this remedy, it was used in Dr. Fell's cancer salve, nearly a century ago; the original formula was:

℞ Zinc Chloride . . . . . 1 dr.
Pulv. Sanguinariai radicus . . . . . 1 dr.
Amgli q.s. to form a paste.

Apply on pieces of kid or washed leather.

This formula has been in constant use for over one hundred years, in the above, or modified forms, and many of the older practitioners adhere to this treatment today. The writer's father, who was in general practice for fifty years, has recorded forty-eight successful cures by the use of chloride of zinc.

Later, Dr. Marsden, of the London Cancer Hospital, introduced the paste which bears his name, and after his experience in treating over six thousand cases considers arsenic superior to any other known remedy, and his experience has been confirmed by thousands of others, until, today, arsenic may be recognized as the leading escharotic, for the treatment of cancer.

MARSDEN'S CANCER PASTE.

℞ Arsenious acid . . . . . 2 dr.
Gum acacia . . . . . 1 dr.
Water . . . . . q. s.

Mix the arsenious acid and gum acacia, and add sufficient water to form a paste.

The technique of removing cancers with the above paste, or the chloride of zinc paste, if preferred, is as follows: The extent of the tumor should be well outlined, and always remember that this does not include just the surface occupied by the growth, as the cancerous growth extends, at least, from one-quarter to one-half inch, beyond the borders. To avoid a reoccurrence of the growth, this should be removed *en-masse;* after bathing the surface, rubber adhesive plaster of collodion should be placed about the tumor, so as to protect the healthy tissues. The outer integument may now be curretted or removed, with salicylic acid, as the arsenious acid does not act well upon the unbroken integument, and only detains the operation. Previous to the curretting, it is well to thoroughly anaesthetize the surface, with a two to four percent quinine and urea hydrochloride solution; the arsenic paste is now spread over the tumor, and a piece of rubber adhesive plaster should be cut large enough to cover the entire surface occupied by the paste, and project over the borders, which protect the healthy tissues to which it is attached. The application is allowed to remain in situ, from eighteen to thirty-six hours or longer, until you are satisfied that the growth has been entirely destroyed; during the application of the plaster, the patient will suffer more or less pain; this can be relieved by hypodermic injections of morphine, but in ordinary cases, the local anæsthetic administered for the curretting will obtund the tissues sufficiently to prevent any marked degree of pain. When the plaster is removed, the tumor will present a mass of necrosed black tissue, and the surrounding area will be swollen and inflamed. If the tumor was on the face, the eyes may be swollen shut, and the ears and lips œdematus. These conditions should be explained to the patient, before commencing treatment, as they have a tendency to frighten him, if not advised beforehand. The next step is to remove the necrosed mass; this is done with a flax-seed poultice; when the slough separates and

comes away, you should observe if all the cancerous tissue has been removed; if you find any remaining traces of the growth left, the paste should be applied again, to remove these remnants. If you are convinced that the cauterization has been complete, the lesion should be dressed, as any open ulcer, and allowed to heal.

This, apparently, simple procedure is one of the most successful methods of treatment in present use, for the removal of cutaneous carcinoma, and the limit of its application will depend upon our familiarity with its action; it may be used on a surface from one to

EPITHELIOMA REMOVED WITH MARSDEN'S PASTE.

four inches in diameter. Larger surfaces can be treated with two or more applications, until growths of quite a size are removed.

One of the most frequent questions asked is regarding the constitutional absorption, and poisoning from the arsenic. This has never occurred, to my knowledge. Arsenic seems to possess, more than any other remedy, just sufficient action to excite inflammation, and destroy the diseased tissue, without doing any permanent damage to the healthy structure or organism. Caution should be exercised, however, when the plaster is applied to the lips and near the eye, in order that it will

not be swallowed or injure the delicate structures of the eye.

The resulting scar from this treatment is very slight, and when very small surfaces are treated, they are hardly noticeable.

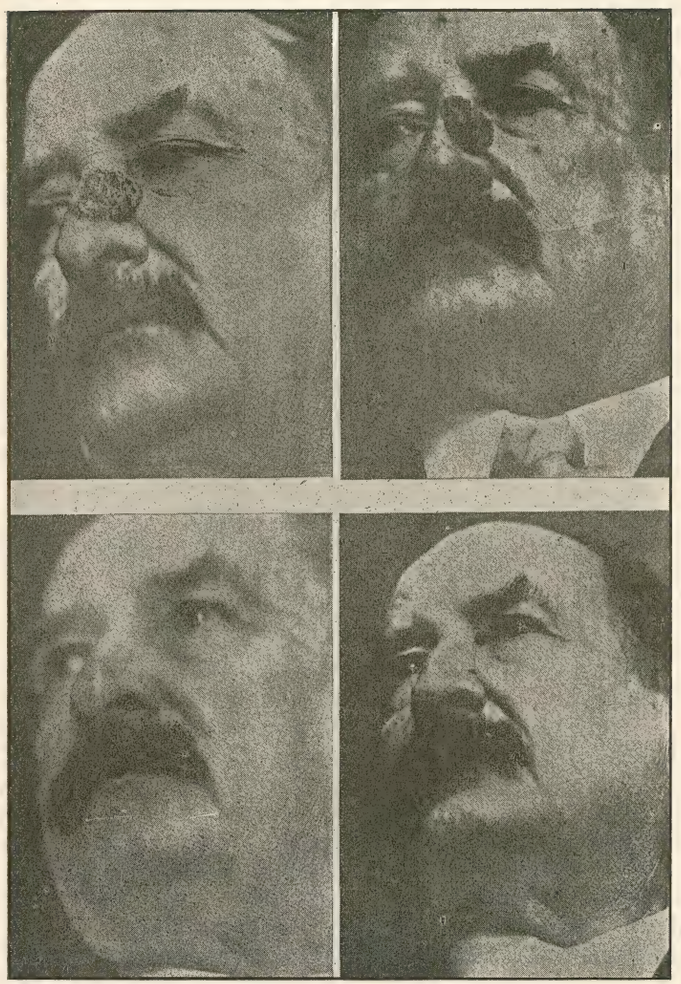
SOLIDIFIED CARBON DIOXIDE.

Solidified carbon dioxide offers one of the most practical and painless methods of treatment in present use, for the removal of cutaneous neoplasms, either of a benign or malignant type, and has the following advantages, over any other method of treatment: In selected cases, the operator always has the action of this chemical under his minute control, and can regulate the extent of its action by its brief or prolonged pressure to a given surface. It is the most rapid means in our possession, of destroying these growths, as we can accomplish the same results in a few seconds which requires hours with the plaster; it is also the least painful and most convenient way to destroy these growths, and seems to possess the faculty of permitting epithelium to regenerate, and thus reduces the formation of scar tissue to the minimum.

The technique for removing cutaneous neoplasms, whether it be a wart or mole, birth-mark or epitheloma, is the same. The crayon of carbon dioxide, with its contact surface brought to a point, suitable in size to comply with the surface you are treating. If it should be a small mole, the point of the carbon dioxide should be small; if the surface occupies a larger space, the point of the crayon may be as large as you desire.

The action of the carbon dioxide is to freeze the parts, and thus produce a dry form of gangrene, which nature desquamates from the healthy tissues, and leaves a clean, healthy under tissue in its place.

The application of solidified carbon dioxide is very simple; the crayon is pressed against the growth, which, almost immediately, takes on the condition of freezing,



THE RESULTS OF CARBON DIOXIDE SNOW IN THE TREATMENT OF CANCER.

and turns the cancerous mass into white ice; the crayon is moved about the growth, until the entire surface is covered. Within twenty-four hours after the freezing, the mass forms into a crust, and at the end of from ten days to three or more weeks, the crust will be forced off by nature's process. If the operation has been successful, we will find a healthy looking, underlying tissue, which from a cosmetic point of view is more beautiful than from any other means of removing these growths, and this is the treatment par excellence for the removal of all small growths, including warts, moles, birth-marks and small tumors of a malignant nature. The patient should be forewarned regarding some swelling of tissue, adjacent to the growth treated, and the pain is so slight, that patients will often not complain at all, or refer to its as a sensation of heat or cold; which, they are not always able to determine.

Dr. Bernstein recently reported fourteen cases in the *Hahnemannian Monthly,* one of which is illustrated here, and demonstrates the value of this indispensable process of removing these growths. The doctor states: "There have been no failures in the hundreds of cases treated; the percentage of cures still remaining one hundred," which is verified by the writer's observations.

Finsen demonstrated before the association of Danish physicians his first case of lupus, cured by the action of light. This was the beginning of a new therapy, by the energy of radiation, in the treatment of neoplasms; this system, founded by Finsen, has also involved the form of energy, which is utilized in various ways, and includes, principally, the Finsen light, x-ray, high frequency currents, radium, etc. These elements have been found, by constant observers, to have their basic effect through their ability to destroy micro-organisms which cannot resist the influence of light, as can the healthy, normal tissue. While the Finsen light is successful to a certain extent, most authorities have abandoned its use for the more powerful forms of radiation, and the Finsen light is almost limited, in the London hospitals, to the milder forms of cutaneous affections, including lupus; the other forms of radio-therapy, as a rule, are utilized for the treatment of cancers proper. While the effects of all these agents are similar, in some respects, in others there is a vast difference, which experience has taught us to differentiate and individualize, with specific indications for each. Whether cancer is due to a micro-organism or not, makes no difference so far as the treatment is concerned; we do know that these radio-therapeutic measures are capable of stimulating normal cell activity, in their defense against the invading cancer cells, and cause the latter to be absorbed, but, just how this is accomplished no one has been able to explain. Our present knowledge in the field of radio-therapy would indicate the following conclusions: 1st. The Finsen light exerts its best influence in superficial cutaneous lesions, including lupus. 2nd. The x-ray is more effectual in the deeper seated lesions, including epitheloma. 3rd. High frequency currents are one of the best constitutional measures to increase metabolism and nutrition, relieve pain, and check the progress of disease. 4th. Radium, when its technique is more thoroughly understood, perhaps will offer us a means of reaching these growths in the deeply seated organs. Any one or all of these methods may be preceded by surgery, the freezing or plaster treatment, to reach the deeper structures, and are frequently utilized to their best advantage in destroying the remaining cancer cells after surgical measures.

The fact remains that solidified carbon dioxide is superior to any other means of treating skin cancers and therefore the technique of radio-therapy will not be discussed here. We will however disclose some of the possibilities and new developments regarding radium which promises such a bright future in the treatment of cancer.

Where the ulceration is more extensive, longer and more frequent applications are necessary. The treatment in these cases sometimes extends over several months, as it is necessary to feel one's way very cautiously. One such case was as follows:

Miss G., 32, came under observation Aug. 28, 1910. Since birth she had had an ulcerated area in the right temporal region. It increased gradually as a child, and from the age of ten until the present she had been under treatment of various kinds. It has twice been excised, and pastes, X-rays and leucodescent light have been tried. It would improve, but that was all. Among those who have seen this case there is a difference of opinion as to the true condition. The early age at which it began would suggest a lupoid character, but the appearance in August suggested rather a rodent type. Dr. Louis Wickham saw the case after some radium therapy had been employed, but would not give a definite diagnosis. He expressed the opinion that it was probably of lupoid character to start with, but had taken on the character of the rodent ulcer.

When first seen there was an area of scar tissue on the right temple the shape of an equilateral triangle of one inch and a half to each side. In this area, three-quarters of an inch behind the eye, was an ulcer three-eighths of an inch in diameter punched out with thickened and slightly undermined edges. The floor was covered with pale, unhealthy looking granulations, and there was a sero-purulent discharge. Behind this ulcer, at the lower angle of the area, was another smaller ulcer of similar appearance, and just at the angle of the eye was a small ulcer, the size of a pin's head.

A strong placque, screened, was used several times, and then the patient went home. She was seen again at the end of September. There had been a good deal of surface reaction, and a crust had formed over all the ulcers. No further treatment was given at this time. At the end of October she reported again. The crust was still present, but was easily removed, and underneath the skin was formed slightly thicker than normal and redder, but with absolutely no ulceration. The parts were radiated again, using heavier screens in order to get a deep action and soften up the tissues.

It is, of course, too early to say whether this result will be permanent, but from other cases reported in the French literature we can see no reason why it should not be.

The early result here points to the condition being one of rodent ulcer rather than lupus, as experience has shown that the latter do not react so readily as the former to the action of the radium rays.

To show the result with the common rodent ulcer, the following cases may be given as examples:

Mrs. L., presented a rodent ulcer on the left side of the nose of four years' duration, which had resisted all treatment. Within one month after a series of radium applications the ulcer healed, and is still so at the time of writing, seven months after she was first seen.

Mr. M., showed four typical rodent ulcers on the left cheek and one on the skin of the upper lip. They had been present for two years. He was given applications of a placque of 500,000 activity, eight hours to each spot, extending over a period of two weeks. At the end of that time the radium crusts had formed.

Under date of Nov. 29th, the patient writes from New Orleans: "It affords me much pleasure to advise you that all trace of the affection has vanished, not even the smallest trace of a scar can be seen."

Mrs. R. had a small nodule on the left side of the nose. It appeared two years ago and had increased in size until it was three-eighths of an inch in diameter. It was not ulcerated. It had begun to pain a short time before. She had had no treatment of any kind. She was given a short application of a strongly active placque, and on presenting herself six weeks later the nodule had quite disappeared.

EPITHELIOMA OF THE LIP.—Two cases of superficial epitheliomata of the lip have responded splendidly to treatment. Other epitheliomata have been referred on which prolonged treatment will have to be carried out, and on which we hope to report more fully later. To mention a few:

Mrs. B., epithelioma of the buccal mucous membrane, which had recurred after removal. She was seen six weeks after treatment, and there had been no reappearance; she will, however, have to be kept under observation from time to time.

FUNGATING EPITHELIOMATA.—Fungating cutaneous epitheliomata are particularly suited for radium action, and various techniques can be adopted depending on the individual case under observation. "Cross-fire" action often gives excellent results with the use of different forms of filters. A preliminary curettage and removal of the vegetations is of help in decreasing the time required for cure, but is not absolutely necessary.

T. F. T., æt., 54, presented on Oct. 29th a fungating mass, as large as a fifty-cent piece, below and behind the left ear. There had been a small ulcer for about five years, but latterly the growth had been very rapid. The growth was covered with cauliflower excrescences, and projected three-quarters of an inch above the surrounding skin. The edges were hard and everted, and the tissues about were quite hard, as though the growth extended to some depth. There were no enlarged glands to be felt. Under local anæsthetic the vegetations were removed, and the next day radium applications were made. These were repeated for four days, and then the patient returned home. He was seen again in three weeks, at which time all that was observed was a small, healthy ulcer, one-half inch in diameter. The epithelium was growing over it, and it looked as though it should be healed completely in another two weeks. The edges were quite soft, as were all the surrounding tissues. A few more applications were made to stimulate the healing, and he again returned home. On December 1;th, he reported it "practically healed, with only a small crust to be detached."

SARCOMATA.—The case described below, together with one other case of cancer of the uterus, forms perhaps the most interesting study we have made.

R. J. B., æt. 53, in February, 1909, he noticed a lump at the angle of the jaw, on the right side. X-rays were used without any apparent effect as the mass kept increasing. In April, 1910, the tumor was removed and showed a small round-celled sarcoma. In June it recurred. Excision was again advised, but as a facial paresis had followed the first operation, the patient would not consider further operative procedures. He was therefore referred for radium treatment.

At first, very thorough radiation was carried out with placques, and some decrease in the size of the mass could be noticed. The cross-fire method was here used, a placque being placed on each side of the tumor.

The beginning of October the mass was two inches in diameter and elevated three-quarters of an inch above the level of the surrounding skin. It was quite firm and seemed attached to the underlying angle of the jaw. On Oct. 5th, an incision was made into the tumor, and a small silver tube containing one centigram of pure bromide of radium, with an activity of 2,000,000 was inserted deeply into its center. It was left in place 24 hours, and the result was most remarkable. At the end of this time there was a cavity present, into which the finger could be inserted, the growth felt much softer and was more freely movable. From the opening thus made broken down necrotic tissue was discharged, and the size of the tumor visibly diminished. Twelve days after this first treatment the tube was inserted again, two hours daily for six days, with the placque applied externally to produce the cross-fire action.

The patient then returned home and reported in one month. On inspection no tumor mass could be seen at all. On palpation two small masses, which felt like

scar tissue, were present, one just in front of the ear, the other behind the angle of the jaw.

We regard this as a most gratifying result, although the patient can in no sense be regarded as cured, and will be required to be watched from time to time. He would be a foolish man indeed who would make any such claim so soon as this, but others report cases of round-celled sarcoma, removed and free from recurrence after five years, and we see no reason why the same result should not be looked for here.

CANCER OF THE UTERUS.—In many cases of cancer of the uterus radium can be of great service. Dr. Wickham has reported cases regarded as inoperable, which were so reduced as to render a later operation possible, while where there had been recurrence in the scar tissues in the vault of the vagina following operation, radium was effectual in removing it. In all cases the most striking effect was the rapidity with which the discharge and pain ceased after a very few applications.

The condition is one that offers itself very readily for treatment, on account of the facility with which the apparatus can be applied. Radium tubes can be introduced into the body of the uterus, or radium placques can be applied to the cervix. We have ourselves had the opportunity of verifying these beneficial results in the following cases:

A patient, æt. 53, first noticed a bloody uterine discharge in January, 1910. She did not consult a physician until June. The cervix was cauterized, but serious hemorrhage recurred, and in July she underwent an operation at the hands of a leading gynæcologist in Toronto, when the uterus was curetted, and the cervix amputated. This was all that was done, as, in the surgeon's opinion, the left ureter and bladder were involved, and hysterectomy would not be justified. A very grave prognosis was given On August 15th, in the vault of the vagina, and where the cervix had been

removed, was a raw, bleeding, granular surface, about two inches in diameter, extending into the vaginal wall. The left side was more involved than the right, and in order to remove the growth completely, an extensive dissection would have been required, and probably the removal of the left ureter.

The uterus was fixed on the left side, and examination by bi-manual method caused a good deal of pain. The body of the uterus was not enlarged.

In view of the extensive operation which would have been necessary, and the uncertainty of complete removal, radium treatment was advised.

Treatment was accordingly instituted, and from August 15th to October 7th, with two weeks' intermission, a strong radium placque was placed against the cervix for twelve hours every night. The discharge ceased after the first few applications. The pain disappeared, and the bladder condition improved. On October 7th, a tube containing one centigram of pure bromide of radium in a catheter was inserted into the uterus for fifteen hours. The patient then returned home. Examinations made from time to time had shown a continuous improvement and lessening of the area of ulceration. On November 30th, she reported, and Dr. Cleland again examined her and reported as follows:

On Nov. 30th, the raw surface was reduced to an area about half an inch in diameter, which showed no tendency to bleed as formerly. The uterus was more movable, but still somewhat fixed on the left side. The patient reported herself as suffering no pain nor discomfort of any kind, and as having gained about 15 pounds in weight. The improvement in the local condition was most marked, and an operation could now be undertaken with more certainty of success. But, owing to the improvement under the radium treatment, it seems advisable to continue it for some time yet.

EXOPHTHALMIC GOITRE.—Dr. Abbe was the first to employ radium in the treatment of this condition. This

was effected by making incisions into the thyroid gland, into which radium tubes were inserted. A great decrease in the size of the gland followed, with amelioration of the nervous symptoms, and this result has continued. Dr. Wickham, of Paris, has also successfully treated cases by the placques, with "cross-fire."

A case which presented itself recently has given us an opportunity to observe the action of radium in this condition.

Mrs. M., æt. 31, noticed a small lump at the root of the neck five years ago. Local applications were used, but there was no change one way or the other. One month ago it began to grow, particularly on the right side. The tumor protruded and began to cause distress in breathing, speaking and swallowing. At the same time she began to feel tired, with loss of energy and appetite. Examination showed enlargement of the isthmus and right lobes of the thyroid, the tumor being quite hard in consistency. The circumference of the neck was 15 inches. The pulse rate was slightly increased.

Applications of radium placques have been made, and already within three weeks there has been marked improvement. The tumor has decreased, so that the circumference of the neck is only 13 inches, and the pressure symptoms have quite disappeared. The improvement in this short period of treatment has been so marked that a further decrease in the size of the thyroid can confidently be expected.

Post-Operative Prophylaxis.—Dr. Wickham, in his latest papers, insists strongly on the association of radium with surgery. He claims that in many cases the radium rays will turn an inoperable case into an operable one, and further, that after operation for malignancy, when, no matter how extensive the dissection, one can never be sure of having removed all the cancerous tissues, radium should be used over the scar, and area of operation, as a prophylactic measure to destroy any stray neoplastic cells.

In three cases we have so applied the treatment, two being sarcomas and one a carcinoma. In the latter case, which affected the breast, the radical operation was performed, and some enlarged glands were present in the axilla, which on microscopical examination were shown to be simply inflammatory. Radium applications were made over the line of suture, ten days after operation. This treatment was repeated in one month. Whether the treatment has had any effect, we will probably never be able to tell, either one way or the other, as of course surgical treatment alone is very often effectual in these cases.

The other two cases were sarcomata. One was in a male infant, in which a round-celled sarcoma had developed at the side of the anus. It was removed by surgery, but reappeared in two weeks.

Very thorough radiation was carried out and has been repeated at intervals since, with the result that there has been no recurrence during four months, although all who saw the case regarded it as one in which recurrence would probably occur, and gave a very grave prognosis.

The other occurred in a man of 61, on the suggestion of Dr. Wickham, of Paris. He had had a spindle-celled sarcoma of the tissues on the right side of the neck, which had been removed first in May, 1908, and, owing to a recurrence, again in May, 1910. It soon recurred, however, and a very extensive dissection was done in London, England, in August, 1910. Six days after the operation he went to Paris, where radium applications were made by Dr. Wickham for a period extending over three weeks. As a prophylactic measure, he was advised to have this treatment repeated at intervals, and in Toronto in October, 1910, was given another thorough radiation over the field of operation, and particularly at points where the scar tissue was in excess. By this method we believe any sarcoma cells can at least be held in check, if not actually destroyed.

From the experience we have had with this agent during the past few months abundant opportunity has been given to verify the results obtained by others in its therapeutic use.

Judging from results already obtained, we feel that radium therapy is only in its infancy, and that the future will disclose other pathological conditions in which it can be of great service."

THE INJECTION TREATMENT OF TUMORS.

There have been several attempts to inject different medicines into the substance of tumors to change the character of the growth, or to transform or liquefy indurated growths to a sloughing process, where it may be treated as a simple abscess, etc.

In certain forms of tumors this means of treatment has reached a reasonable degree of perfection, while in others it has proven deficient in the results expected; this has been particularly so regarding the aim of scientific medicine to find some serum that will kill or paralyze cancer tissue, without destroying the normal tissue in which it is embedded; it is, therefore, well for the physician to become familiar with the latest facts which have developed in these lines of treatment.

TRYPSIN TREATMENT.

Trypsin is one of the digestive products of the pancreatic gland and plays an important part in the digestion of proteids. Dr. Beard, of Edinburgh, advanced the theory that this remedy would digest cancerous growths and convert them into a substance which can be absorbed and eliminated.

Dr. Luther has presented a full discussion of the tryspin treatment of cancer, based upon knowledge gained by a visit to Beard and other workers in Great Britain, as well as upon some observation of his own. Beard's introduction of tryspin as a therapeutic agent

in cancer is based upon embryological discoveries which he has made in the course of his studies of this subject. Instead of developing directly from an egg, the course of development of the embryo is extremely indirect. The fertilized egg undergoes karyokinetic division and subdivision to a limited number of mitoses depending upon the species. The result of this is a tissue named variously by Beard as phorozoön, trophoblast, larva, or a sexual generation. This tissue, which composes in reality, partly or wholly, the chorion, is endowed with "indefinite, unrestricted powers of growth." Digestion in these cells is an intracellular, acid, peptic one, as has been proved by Hartog.

The final division of these trophoblastic cells results in a primitive germ cell which again divides and subdivides to a various but definite number of mitoses, depending upon the species under observation. The actual number for man is not known. This division results in a number of primary germ cells, again the number depending upon the number of divisions, this being definitely fixed for every species. For instance, in the skate the primitive germ cell undergoes seven mitoses, resulting in 512 primary germ cells. From one of these primary germ cells the embryo develops. The remaining germ cells form the foundation for the succeeding generation—that is, they develop into the sexual glands of the growing embryo. Beard has observed these cells in various stages of migration into the embryo. In the earliest stages of the skate, while there are still three distinct layers, no germ cells are seen while the outlying blastoderm is crowded. As time advances they are found between the layers, and later still large numbers are seen there. The objective point of these migrating cells is the germinal nidus, and after arriving there they begin to undergo division, and finally, after a limited number of mitoses, develop into primitive ova if the organ is an ovary, or spermatogenic cells if a testicle.

After the embryo is well formed and the organs mapped out and functionating, the trophoblast is no

longer of use and disappears. The cause of this disappearance is purely hypothetical, but Beard believes that it is due to the activity of the pancreatic secretion. Up to this time the cell division has been an intracellular, acid, peptic one, and from this time, which Beard calls "the critical period," the digestion becomes an alkaline, pancreatic one, and as a consequence these cells are digested and absorbed.

This normal course is subject to variations. During the act of migration many of the primary germ cells never reach their objective point—the germinal nidus—but, wandering between the layers of the forming somatic cells, are obstructed in various corners and crevices and forever lost. The usual fate of these vagrant germ cells is degeneration and absorption, but they may become encapsulated and remain. Should any of these encapsulated vagrant cells attempt to go through its life cycle, the result might be a monstrosity such as the Siamese twins; one embryo attached to another; or one embryo, partly or wholly developed, more or less completely embedded in another well-formed one. So we may go down through the scale to the class of tumors known as embryomas, teratomas, or dermoid cysts, which in the ovary would be the result of persistent germ cells.

In the development of a malignant tumor, either the embryonal stage is skipped by these developing vagrant cells, and in proliferating a trophoblast is formed, or the cell attempts to go through with its normal cycle—the production of an ovum which in its turn develops into a trophoblast; the embryo failing, there is no "critical period" and no check put upon the "indefinite, unrestricted power of growth" with which these cells are endowed. This is an "irresponsible trophoblast," or malignant tumor.

Beard, having noticed the trophoblast gradually disappear with the development of the pancreas, decided that the pancreatic ferments caused this disappearance. If this were true, he reasoned that the pancreatic ferments would cause the disappearance of an irresponsible trophoblast or malignant tumor. The theory was confirmed by experimental work. The pancreatic ferment acts upon the cancer albumin and the cancer ferment in an antagonistic manner, as a result of which the tumor gradually diminishes in size and disappears by absorption, or is killed and converted into a benign fibrous mass.

Shaw-Mackenzie had introduced the use of trypsin in the treatment of cancer at about the same time, but was led to its use in an entirely different way.

The treatment consists in the hypodermic injection of a solution of trypsin daily for a period of four weeks, followed by the hypodermic injection of a solution of the diastatic ferment, amylopsin, every other day alternating with the injection of trypsin, the maximum dose of which is maintained. This for four weeks, followed by another period of four weeks or more, during which daily injections of amylopsin alone are given.

The trypsin injection which the author has used is a sterilized glycerin extract of the freshly macerated pancreatic gland, and besides trypsin it contains all the other pancreatic ferments. The amylopsin injection is, he believes, freed from the other ferments. They are both in 60-per-cent glycerin solution and consequently require dilution with two volumes of water or normal salt solution. They are put up in sterile glass ampoules, containing about 20 minims each.

The treatment should be started with a few preliminary injections of 5 or 10 minims before the full dose of one ampoule is given. After this the dose may be gradually increased. Maguire, of London, gives two ampoules, or 40 minims, as the maximum dose, but 75 minims is frequently given without bad effects. The dose of amylopsin should be graduated in the same way.

The injections may be given anywhere except into the tumor, on account of the pain and local inflammation produced. Probably the best place is the loose

cellular tissue of the loin. It should be thrown deep into the cellular tissue, but not into muscle. The greatest care should be exercised to render the syringe and the skin at the seat of the injection sterile. Abscesses are apt to follow failure in this respect. Though the author has given over five hundred injections, not one has caused any more trouble than some soreness and induration, which lasts for a few days.

Trypsin is rendered inert by heat, consequently care must be taken to cool the syringe after boiling before the solution is drawn into the barrel.

In addition to the hypodermic injection, stress is laid upon the oral administration of some pancreatic preparation. The local application, where possible, of a liquid or powdered preparation of trypsin or pancreatin is also recommended where the cancer can be reached. This undoubtedly is useful, for it does cause a rapid breakdown of the mass.

Some patients after receiving a number of injections show toxic symptoms, which Beard attributes to the digestion and absorption of the cancer cells. These symptoms, beginning with nausea and vomiting, pain in the back and drowsiness, develop, but usually clear up promptly under injections of amylopsin, while the trypsin treatment is continued but the dose diminished. Should the trypsin be continued without amylopsin in these cases, high arterial tension, albuminuria, rigors followed by rise of temperature, and coma might develop.

The trypsin treatment has been used by various observers in different parts of the world, and of the reported patients five have been pronounced cured, though in not one of them has the microscope corroborated the clinical diagnosis. It is the concensus of opinion of those who have tried the treatment that it does in most cases cause an arrest or shrinkage of the growth; improvement in the general nutrition, in which the appetite improves and the weight is maintained or increased; diminution or cessation of pain, and diminution in the

discharge and fetor except in those cases in which sloughing occurs. Large doses are required, and perfection of the treatment will necessitate the finding of methods for obtaining pure and more concentrated solutions of the ferments so that they can be administered in reasonable quantities."

MR. CALOT'S INJECTION TREATMENT FOR TUMORS.

What seems to have remained undeveloped, with the trypsin and other treatments, has been successfully perfected by Dr. Calot, of Berck, in the successful treatment of certain benign tumors, especially of the cervical glands. This injection treatment is not only commendable for the most excellent results obtained, but also from the fact that it leaves little or no trace of the operation in the form of a resultant scar, in places on the body where such disfigurement is most noticeable. In referring to the treatment of enlarged cervical glands, Dr. Calot remarks:

"By what mental aberration is it that surgeons puncture cold abscesses in other parts of the body, and operate only in suppurating glands of the neck? In truth ought they not to follow exactly the opposite line of conduct, since the question of a scar is only of importance in respect to the face and neck?"

No doubt the surgeon would reply that this is the price that has to be paid for the cure of the adenitis, that the scar is the unavoidable ransom, and that sanguinary intervention is the *sine qua non* of perfect recovery.

Yes, but is that really the case? Some twenty years ago I used to say the same thing, with the result that I operated upon large numbers of enlarged glands.

Nowadays, I say nothing of the kind; I no longer hold it to be true; indeed, I am convinced of the contrary. For the last seventeen or eighteen years I have given up operating enlarged glands, yet I have obtained

cures more numerous and more satisfactory, and in every respect, more complete than those I used to get.

At the present time thousands of enlarged glands of every degree of severity have been cured in this way without operation, by others as well as by me.

Now this is precisely what practitioners in general are insufficiently aware of, or at any rate, they too willingly lose sight of it in practice. It is therefore, incumbent upon us to repeat as emphatically as may be, viz:

1. In many cases enlarged cervical glands undergo spontaneous resolution, provided that they be allowed time, and are assisted in so doing.

2. The other cases of enlarged glands, those which do not undergo resolution, will break. A softened gland can nowadays be cured, without scarring, by method of punctures and injections.

Having instituted this comparison, what reason can there be not to discard sanguinary interventions for enlarged glands? A treatment that mutilates and affords no guarantee whatever against a return, indeed which very often seems to pave the way to a return.

Yes, indeed, many and many a case have we seen of this relapse in patients, in spite of the fact that they had been operated by some of the best surgeons in the two hemispheres.

These patients come to Berck for the purpose of escaping further interventions; the only result of the previous one having been to gash them, and in some instances, to leave them rather worse in health than they were before they placed themselves in the surgeon's hands.

Here is a very striking instance of the kind, (Figs. 1 to 4): The young man in question was operated upon in London, five years ago, for a slightly enlarged cervical gland, by one of the foremost English surgeons, so that we may take it the operation was done skillfully and completely. All the same the mischief recurred. Again he was operated upon and again it

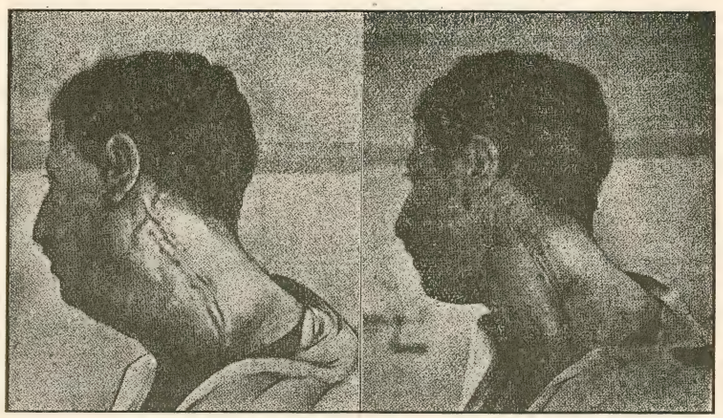


Fig. 1.—Evil results of operations; enlarged glands operated four times in England and Switzerland.—Result: a neck frightfully slashed for life with a return of the adenitis much larger than before the first intervention (see text).

Fig. 2.—The same—a year later—after treatment by dissolvent injections (see text). Complete cure without further scarring; there only remains the previous operative scars.

Fig. 3.—The same (right side) on his arrival at Berck, for he had developed an enormous mass of glands on the right, following the fourth operation on the left side (see text).

Fig. 4.—The same, seen from the right side, which fortunately had not yet been operated.—Here he is a year after our treatment by injections.—Perfect cure without scarring.

recurred. Then the patient betook himself to Switzerland where a third operation was performed, followed by a third recurrence; five months later a fourth operation with a fourth recurrence. The more they operated the more it "grew again."

More than this, after the fourth intervention, the right side, previously immune, was involved in its turn.

It was at this juncture that the patient came to us with a double tumefaction, (Figs. 1 and 3); a tumefaction so enormous and so ugly in appearance that it gave one the impression rather of a lymphadenoma than of a bacillary adenitis.

Now pray examine this same patient a year after he came to Berck, (Figs. 2 and 4). I shall explain, further on, how we treated and cured him without operation. All I ask you to bear in mind with regard to this case, (and I have plenty of others equally convincing), is this: that even the freest ablation of enlarged cervical glands, however accessible they may be, does not afford any reliable assurance of the absence of recurrence, and this is a further argument in favor of our aphorism: "Tuberculosis is not amenable to the scalpel, which rarely cures, often aggravates and surely mutilates"

Dr. Calot's injection treatment consists of two fluids, one of which is used to soften the glands, when he wishes to hasten the dissolution, and the other injection fluid is used where the glands have already become soft, as is the general course of such tumors. These formulas are as follows:

CREOSOTED IODOFORMIC OIL.

℞ Olive oil . . . . . 70 parts
Ether . . . . . 30 "
Creosote . . . . . 3 "
Guaiacol . . . . . 1 "
Iodoform . . . . . 10 "

CAMPHORATED NAPHTHOL.

℞ Camphorated naphthol . . . . . 2 parts
Glycerin . . . . . 12 "

The second mixture must be well shaken up for a minute and a half, and injected immediately, as it is very unstable.

These two liquids suffice for all requirements. The indications for their respective use are: as a general rule inject the first, (oil). The second, (camphorated naphthol), is to be reserved for cases in which the contents of the abscess cavity comprise grumous particles, blocking the needle; in such case, two or three injections of camphorated naphthol will soften and liquefy the grumous material, after which we return to the oily liquid.

The quantity to be injected is the same for both liquids viz., from 2 to 12 grammes, (half to three drachms), according to the age of the subject, and the size of the abscess cavity. If we are dealing with quite a small abscess, of less than 20 c.c. capacity, which is nearly always the case here, we inject twice less liquid than withdrawn pus.

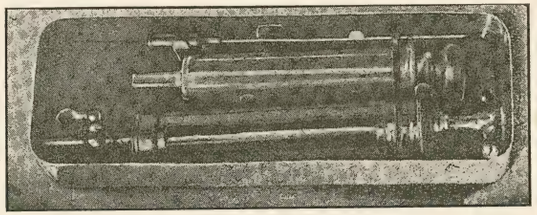
Of equal importance is a suitable aspirator, the all-glass syringe, illustrated here, is the usual style, or the metal syringe, either of which can be sterilized by boiling, are the best adapted instruments. In addition to the above, a tube of chloride of ethyl for local anæsthesia, some tincture of iodine to sterilize the skin, and antiseptic dressings are all that is required. Dr. Calot gives the following technique for the operation.

DIRECTIONS FOR THE OPERATION.

When should the punctures be commenced? As soon as fluctuation is clearly perceived. In carrying out these operations there are two particular recommendations, viz., to proceed with the utmost cleanliness and only to use very fine needles; be very clean, and make sure that your hands as well as the skin of the

patient, the instruments, the liquids to be injected, and the final dressing are aseptic. Only use very fine needles, instead of the customary big trocarts, not bigger than 1.5 millimetre external diameter, and always pierce healthy skin at a distance of two or three centimetres from the abscess, so that the two orifices of the skin and the abscess, may be separated by a long oblique canal, and at each puncture pierce the skin in a fresh place.

As to the number of punctures: several will be necessary, (as a rule seven or eight), because a cure is much more certain than with one single puncture. The puncture should be made at intervals of five or six days. After the seventh or eighth sitting, the walls of



DR. CALOT'S SYRINGE.

the abscess cavity are healthy, and refreshed enough to allow of our devoting our attention to the apposition.

With this object in view, at the next sitting, after making a final puncture without injection, pressure is applied to the region with crossed strips of wadding, (see illustration), kept in position with one or more crepe bandages.

This dressing is left off on the fifteenth day. The suppurating gland is cured. The duration of the treatment is therefore from 6 to 8 weeks on an average.

Please note that this complete, absolute cure is not the exception, but practically the rule.

As soon as you have become fairly familiar with the details of this method which, although rather minute, presents no actual difficulty, you will find that recovery, without scarring, takes place invariably, or nearly so, that is to say, ninety times in every hundred, and this in cases when surgeons who had been consulted, declared an operation unavoidable.

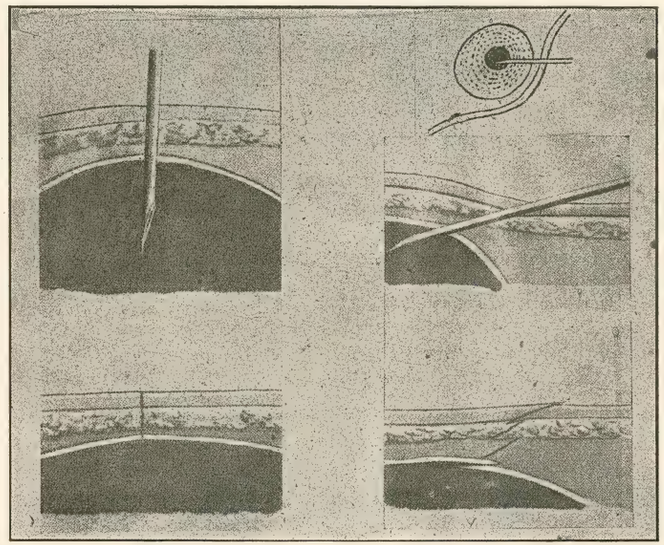


Fig. 1.—How we must not puncture, because if we plunge the needle perpendicularly to the wall, the passage through the tissues will be too short, the edges of the little wound remain opposite each other when the needle is withdrawn, thus opening the door by infection of the abscess by pus that may flow back.

Fig. 2.—How to make the puncture. The puncture is to be very oblique with a much longer passage (A). Moreover, the retraction of the tissues breaks up the continuity of the passage and converts it into a labyrinth.

WHERE THE ENLARGED GLAND IS HARD.

It has already been stated that the enlarged glands stand a fifty per cent better chance of undergoing resorption, if we assist matters a little. We therefore imbue the patient with the necessary patience and in the meanwhile provoke, or promote, this resorption by

every means at our disposal; residence in the country, and if possible at the seaside, a course of balneological or hydrotherapeutic treatment, the administration of drugs, known to be used in tuberculosis, X-ray, etc., and adding a few injections of creosoted iodoform oil, taking care not to overlook the aseptisation of the whole of the territory discharging into the affected glands, more particularly the toilette of the mouth and teeth. Under these conditions, you will very often, indeed most often, see these glands disappear in the course of a few months.

If it does not disappear, the enlarged gland will, in the long run, soften, which is after all, a mode of cure.

We will be on the lookout for this softening, in order to intervene at once, before the skin has had time to become damaged. Thereupon by punctures and injections, you will cure your patient without leaving any mark.

I only recognize one really troublesome contingency in practice, and fortunately, this is exceptional, viz: cases in which the state of the enlarged gland does not change, and shows no tendency in one direction or the other, in spite of our patience; of repeated injections of creosoted iodoformic oil, in which it does not undergo either resorption or softening, cases in which one or more glands remain of pebble-like hardness, suggestive of lymphadenoma, (while on this point you are, no doubt, aware that nearly all the glandular tumors of the neck labeled lymphadenomata are actually cases of tuberculous adenitis).

Here we may appear to be thrown back upon the operation, that is to say, to the inevitable and lifelong cicatrix. Oh, why does this obstinate gland remain hard? Why does it not suppurate? But the gland declines to suppurate. Well, is it not possible to constrain it to suppurate? Can we not oblige this obdurate gland to break? Evidently, if we can do so, we shall be able by puncturing it forthwith, to avoid the operation and the scarring.

Fig. 1.—An enlarged gland, still hard, can be softened by injecting a few drops of camphorated naphthol into its centre.

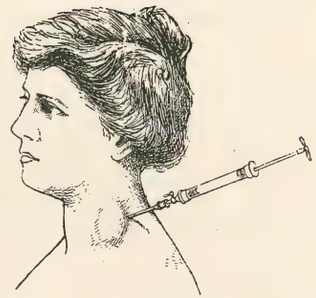


Fig. 2.—First case: Softened gland that has undergone suppuration. It is punctured like a cold abscess.

Fig. 3.—If the skin be already damaged the puncture is made some distance away through healthy skin and nothing is injected after the puncture until the skin has recovered (an injection to be made daily).

Fig. 4.—After the eighth and last puncture compress the region of the abscess in order to bring about adhesion of the walls of the cavity.

This is the problem, (of the artificial softening of these local tuberculous masses), which we were the first to raise, to study and finally to solve. This question of general pathology, we may be permitted to remark, was not free from difficulty, because it was necessary to act energetically on the tuberculous gland, (since we had to make it pass from the solid to the liquid state), but also with extreme precision, in that the action had to be limited to the gland leaving the skin intact, without ulceration, and without visible trace. In the course of our researches we tried pretty well everything; the local application of all the so-called dissolvent agents; all the internal treatments recommended as likely to provoke the resorption of hard glands; breaking up the gland with needles in order to bring about the softening and ultimate resorption, but all these devices proved unavailing.

Intraglandular injection of every possible substance, including tuberculine, pepsine and pancreatine, in the hope of dissolving or digesting the glandular parenchyma, etc.

Ultimately, what we found most satisfactory and most effectual, a means that realized our ideal, (the melting of the tuberculoma, leaving the skin intact), was to inject into the hard gland, or tuberculoma, from eight to ten drops of our "four fluid dissolvent," which is as follows:

FOUR FLUID DISSOLVENT.

℞ Phenol . . . . . 1 dr.
Camphorated napthol . . . . . 1 dr.
Sulphoricinated phenol (at 20 per cent) . 1 dr.
Essence of turpentine . . . . . 1 dr.

This is how it is used: With a hypodermic syringe, you inject from six to ten drops of this mixture into the center of the gland; after two days, five or six drops again. Two days later, (that is to say, four days after the first injection), you will find fluctuation, and you

may puncture. The fluid withdrawn is viscid, and of a mahogany color.

You are now confronted by a suppurating gland, which is to be treated in the manner described above; puncture and injections. But thenceforth, do not inject anything but glycerinated, camphorated naphthol, say, once every five or six days. In this way, you will still manage to achieve a cure without scarring.

It is to be noted, as you may have surmised, that this softening of the gland does not take place without a rather sharp local and constitutional reaction, comparable with that of a "hot" abscess, or rather of a tepid abscess, in course of formation. The patients must be forewarned of this reaction, which is desirable, and is deliberately provoked.

For this matter the reaction is "regulatable" easily enough, and will subside as soon as the softening has taken place, especially after the first puncture.

Should there remain some indurated points, they must be dealt with by fresh dissolvent injections, but without pushing matters to the extent of trying to get rid of the tiniest vestiges. These vestiges may be left, for they will disappear, in the long run, completely or nearly so, by progressive sclerosis.

There is no difficulty when the induration only bears on a single gland, but if the tumor be polyglandular, as in the case of the big young man, (Figs. 1 and 3), this large tumor must be attacked in portions, successively, piece by piece.

In the particular case under consideration, the treatment of each lobe took two months, which make eight months for the entire treatment. You have, however, seen the ultimate result we obtained by our injections, (see figs. 2 and 4).

This case, in itself so instructive, is also interesting from another point of view, as it shows it is not absolutely necessary in order to soften a hard gland to find in its center a focus of caseation, the initial formation of a cavity.

Happily a cicatrix in the neck is vastly easier to prevent than it is to remove. It can always or almost always be avoided by the treatment which I have just described. This treatment no doubt demands a certain minuteness of application, plenty of perseverance, it makes far greater demands on our time than the rapid, brilliant but bloody intervention; yet the latter leaves an indelible mark while our treatment cures without a trace. To cure adenitis without leaving a mark seems to me to be well worth a little extra trouble on our part.

EOSIN AND SELENIUM TREATMENT.

While this book is going to press, word comes from Europe that Dr. Wassermann, of Berlin, and Prof. Ehrlich, of Frankfort, who, for a long time have pooled their forces in a search for an inoculative treatment for cancer, have succeeded in curing this disease, in mice, by a series of inoculations with eosin and selenium. The full details of this treatment are at present unavailable, for no doubt, they have not been perfected, and their experiments have only been confined to mice tumors, which bear a close relation to the carcinoma of man. The most they will say, thus far, is that it is possible that they will come upon some help for human beings, in the course of their research; and the word "possible" from the lips of such men as Ehrlich and Wassermann, comes with weighty significance, and it is hoped that they have developed the long-sought means of destroying these growths, and with that development, advanced another step towards the goal represented in the prophetic saying "the last enemy that shall be destroyed is death."

No doubt this condition, when present, is of great advantage, and much facilitates the complete liquefaction of the gland, under the influence of our dissolvents, but it is not altogether indispensable, and need

not, a priori, dissuade us from commencing the treatment. It did not exist in this case, yet complete recovery was obtained.

Cosmetic Therapeutics and Featural Surgery

Under the above caption we have the latest and one of the most profitable of office specialties; this specialty incorporates, perhaps more of the, apparently, insignificant things in medicine than any other specialty; in fact, the cosmetic treatment of the body a few years ago, was considered a too trifling matter for the grave-faced physician, and this neglect on his part has had a serious reaction in actually forcing such patients to consult the "winning ways of the beauty specialists," who are, as a rule, absolutely devoid of any true knowledge of cosmetic therapeutics, other than the use of massage creams and manicuring the finger nails, and it certainly is time that the physician should awaken to the fact that any information or assistance he can give his patients will be greatly appreciated, and, in many instances, he will receive more praise for his skill in this special sphere of practice than any other. Always bear in mind that the face is the most conspicuous part of the body, and your work is constantly before the eyes of the public; select some person in your vicinity, who has a broken nose or birth mark, successfully remove or correct this blemish or deformity, and you will then realize the influence it will have in establishing an office practice in cosmetic therapeutics.

There are thousands of dollars waiting, in every vicinity, which would be gratefully paid for skill in this special field of medicine and surgery, as the territory is fertile in clinical material. Visit any public place, and observe the people about you who have some blemish or deformity of the face, which should be removed or corrected, and if we figure from the simple

mole to the more noticeable birth-marks, scars and other deformities, you will find that ninety per cent of the people are thus afflicted.

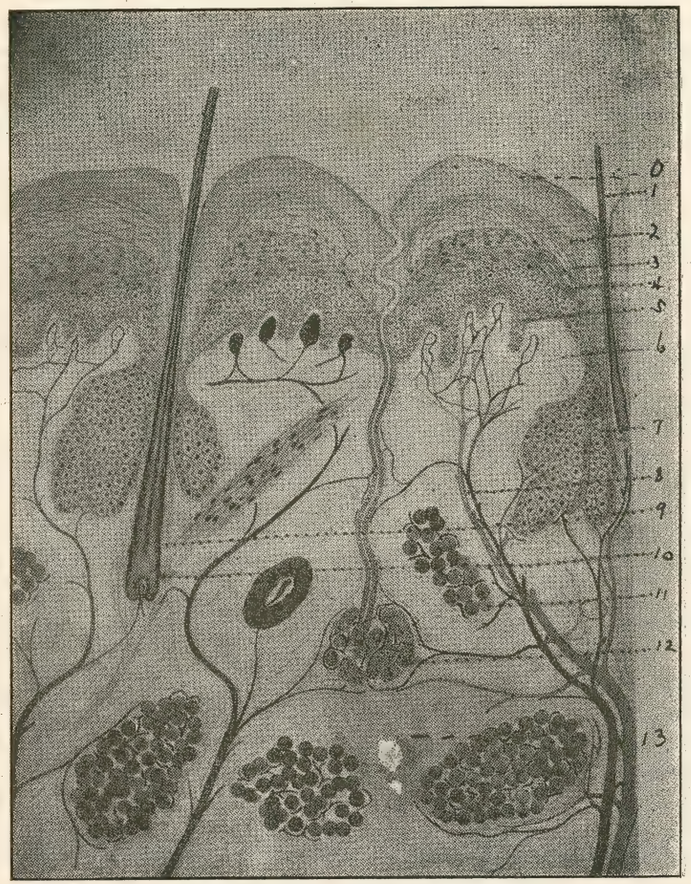
It has always seemed to be a trait or perhaps an instinct in the nature of the human family to cultivate as perfect a degree of beauty as possible, and if we would visit the deepest jungles of Africa, we would find the Congo belle taking the same pride in endeavoring to outclass her sisters in beauty lines, as the strutting princesses of the fashionable thoroughfares of cities. It is a duty, however, which each individual owes himself to appear at his very best, and no one except the afflicted can realize the disadvantage under which they are laboring, who possess an unsightly scar, birthmark or other deformities of the face. It is only in rare instances that we find people thus afflicted employed in public places; their faces are so repulsive that it is often difficult to find employment at all. It is, therefore, the physician's duty to correct and remove these disfigurements, and thus place these unfortunate people on an equal footing with the rest of the world.

There is an old saying that "beauty is only skin deep"; that saying is a monstrous error, for true beauty is heart-deep, lung deep, stomach deep and liver deep. In fact, to be beautiful will depend upon the healthy and harmonious functions of all the organs of the body, and often how quickly the physician can identify, by a bad complexion, a "lazy liver"; inactivity of the kidneys by puffiness under the eyes, and constipation by a muddy complexion. In cultivating true beauty these are the things which should first occupy our attention. There are many different things that have a tendency to make people attractive, other than complexion, and form; the quick wit and sparkling eye, the vivacity of manner, and sprightliness of carriage have a world to do with personal attractiveness; yet these attainments do not go hand in hand with a torpid liver, dyspepsia and other inharmonious conditions of the body. Therefore, to obtain the translucency of the

skin that we may almost look through the outer layers, and observe the blood circulating in the deeper tissues, which gives the rosy cheeks and lips of the ideal complexion of pink and white, the integument cannot be clogged with waste matter, which should be eliminated by other organs. We, therefore, find that cosmetic therapeutics not only embodies the local application of massage creams, to cover up defects, as is practiced by the "beauty specialist", but often requires eliminative measures to force these toxic influences, which ruin many complexions, through their natural channels; although the skin proper will necessarily require its due attention.

From a theoretical standpoint, it would seem that no other class of diseases furnishes such favorable conditions for an easy and accurate diagnosis and treatment as do the diseases and cosmetic defects of the skin. The morbid phenomena, instead of being concealed in organs remote and hidden from view, are spread out upon the surface, and brought directly under examination of the senses of sight and touch. They actually obtrude themselves upon observation, and the disfigurement they occasion is, oftentimes, the sole reason for consulting a physician; yet, notwithstanding these circumstances, there is no branch in the practice of medicine so little understood by the general practitioner as the diseases and cosmetic defects of the skin.

In the treatment of these diseases and defects, the average physician very frequently experiences uncertainty, vexation and failure; yet in no other class of conditions can a physician earn better fees, or become the recipient of more gratitude, commendation and fame, than to successfully master this branch of his art. In order that I may revive his "forgettory" in the anatomy of this important organ, the skin, I have inserted the accompanying diagrammatic illustration, to assist in a correct understanding of the integument, as the different structures will be frequently referred to in discussing the different diseases and conditions.



DIAGRAMMATIC SECTION OF SKIN.

0. Corneum. 1. Lanugo Hair. 2. Lucidum. 3. Granulosum. 4. Rete Mucosum. 5. Papillæ. 6. Corium or True Skin. 7. Sebaceous Gland. 8. Blood Supply. 9. Hair Follicle. 10. Hair Bulb. 11. Fat Cells. 12. Coil or Sweat Glands. 13. Sub Cutis.

There is one principal point which is always to be remembered in treating the skin from a cosmetic point of view, viz.: *We can destroy and remove the four outer layers of the epidermis as often as we wish, but as soon as our treatment interferes with the true skin, or arrests its development, we are treading upon forbidden ground,*

and our treatment will accomplish just the opposite of what is desired in the form of cicatricial tissue and resultant scars.

The face, as a rule, is always in close proximity to the hands during all forms of labor; it is, therefore, the second part of our body which is the most susceptible to deformities and injury from accidents. We therefore find broken and deformed nose cuts, wounds, burns, etc., appearing upon the face nearly as frequently as we do upon the hand. If similar accidents would happen to other parts of the body they would not react to such a disadvantage, as they would be covered from observation by the clothing and not be noticed. The face also seems to be a favorite and unfortunate seat for many destructive diseases, which mutilate the integument. Thus we find the face the "play grounds" for the ravages of smallpox and acne, with their unsightly pittings, while ninety per cent of all birthmarks are upon the face and neck, where they will appear the most conspicuous and repulsive, and react to a disadvantage in both a social and business way. No one realizes this more than the unfortunate possessor, who is continually subjected to the embarrassing stare of the ignorant, and inquisitive glances from the more refined people they meet on the street and elsewhere. As a lady stated, who had a slight deformity of the nose, "the way people stare at me one would think I was some dime museum curiosity." Other patients have made similar statements, whose faces contained several moles, superfluous hair, etc.; one of the most amusing cases was a young man, nineteen years old, who wished to have his nose reduced in size. He stated that ever since he could remember he had been called "beaky," on account of the length of his nose, and, judging from the size of the organ, he was legitimately entitled to the name.

We have at our disposal many methods of treatment, whereby these conditions can be painlessly and permanently corrected, removed and cured, without

leaving any trace, mark or scar, to indicate their former existence. By giving the benefit of your skill in this special field of practice, you will not only receive the everlasting gratitude of your patients, but will be amply remunerated for your services.

COSMETIC SPECIALTIES.

Before discussing the different diseases, deformities and blemishes of the face, which require treatment or correction, we will outline some of the popular methods of treatment, used in this class of conditions, as they will be referred to from time to time in the following pages.

THE ECORCHEMENT TREATMENT.

This treatment originated at the St. Louis Hospital, Paris, where cosmetic improvements are treated on an equal basis with disease. Some speculative "Yankee physician" managed to secure the process, and brought it to this country, where he disposed of it in several cities, to beauty specialists, for several thousand dollars. It is estimated that, in one year, he made over thirty thousand dollars by the sale of these formulas in different cities. The French gave it the name "Ecorchement," but on this side of the water, it is often referred to as the rejuvenating treatment, derna vita, desqua dermia and other coined names, bearing upon new life to the skin, and is the banner treatment in all beauty culture establishments. This treatment consists of two parts, one in which the outer skin is killed, and the other where it is sloughed off en mass. The following is the original formula, although it has many variations, without any improvement:

FORMULA NO. 1.

℞

Resorcin	80 parts
Zinc Oxide	20 parts
Salicylic acid	4 parts
Lard	40 parts
Olive oil	16 parts

FORMULA NO. 2.

℞ White gelatine..... 8 oz.
Zinc Oxide..... 4 dr.
Glycerine .....½ dr.
Boiling water..... q. s.

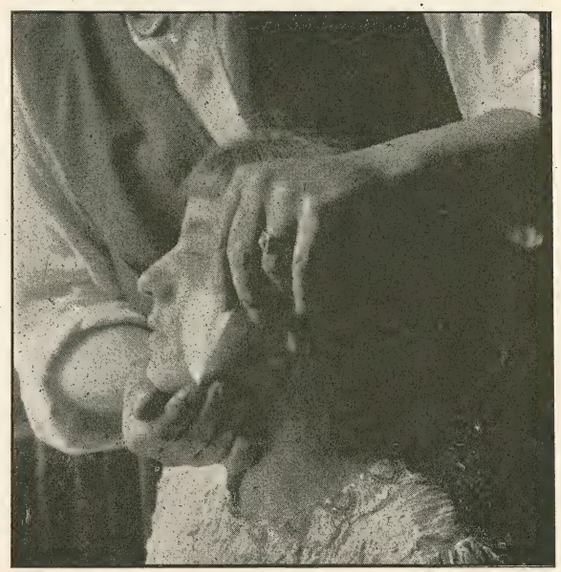
Great care should be exercised in compounding these formulas, and better results will be obtained if they are prepared fresh each time they are used, and do not attempt to substitute vaseline for lard, in the first formula, unless you wish to meet with failure.

The first formula is applied to the face twice a day, for about four or five days, until the skin becomes brown, dry and commences to crack. Then the face is thoroughly washed with soap and water, to remove every particle of ointment, and after thoroughly drying the skin, the second application is used.

The ingredients of formula No. 2 are placed in a water bath, by first adding sufficient boiling water to dissolve the gelatine; then thoroughly stir in the other ingredients. This should be applied to the face with a small paint brush, and as you cover a surface, a piece of absorbent gauze, the size of the painted surface, should be immediately applied, while the gelatine is still hot; this adheres firmly to the skin, after the entire surface has been thoroughly covered. The same process should be repeated again, until you have several thicknesses of the gelatine and gauze, and a solid mask is formed.

At the end of three or four days, it will be noticed that this mask is breaking loose from the edges, and as soon as the mask becomes loose, it can be removed, and the face will be found very much the same color as a newly born baby, and is often very sensitive to the touch and air. The face is dressed with any good cold cream, and in a few days, the shade of the skin resumes its normal color, only we have an absolutely new skin, which in many instances, is marvelously beautiful, for the treatment has removed every mark or discoloration, which the old skin had accumulated in

past years, and is properly named "the rejuvenating treatment," as it will add the youthful appearance to any face. This treatment has a large sphere of usefulness, and owing to the large fees, (usually one hundred dollars), obtained for this treatment by "Beauty Doctors," it is the backbone, from a financial point of view, of their establishments, and they encourage its use whenever opportunity presents itself; for the bane of a

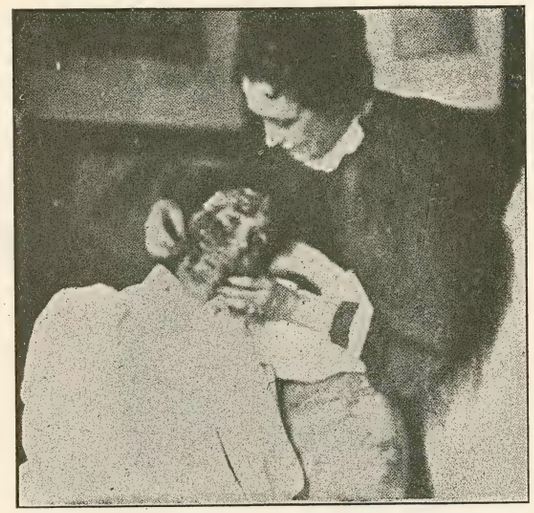


USING THE ECORCHEMENT TREATMENT ON SIDE OF FACE TO REMOVE BLEMISH.

woman's existence is growing old, and this is one of the few means we have of restoring her youthful appearance. It is not believed that physicians will use this treatment for a rejuvenating purpose, but its use in the treatment of many diseases places it within his domain. This treatment is used in acne, acne rosaca, eczema, chloasma, smallpox pits, and many other forms of facial blemishes, which will be pointed out under their respective classifications.

VESICANT TREATMENT.

Another very valuable treatment in cosmetic therapeutics is the Cantharides blister; I usually prefer the "Canthos plaster," manufactured by Johnson & Johnson. These blisters have the same effect as the Ecorchement treatment, and occupy less time to accomplish the same results. The object of both treatments is to remove the outer cuticle, without interfering, in any way, with the true skin. We, therefore, find that this process of blistering will occupy only about four hours, while the former treatment requires that many days. Blistering is a more heroic measure, and where a large surface, as the entire face, is to be treated, the Ecorchement treatment is often advisable, but all small surfaces, up to four inches in diameter, may be successfully treated by this means. If it is deemed advisable to treat the entire face, it should be done in sections, according to the following technique: Apply one plaster, from two to four inches in diameter, and allow the blister to form. As soon as this is accomplished, draw off the fluid, and apply another blister; commencing at the edge of the already formed vesicle. These vesicles may be continued, until the entire face is covered, if desired, or required. After you have prepared the surfaces, in which you wish to remove the outer integument, the fluid is all drawn off by puncturing the under surfaces, but avoiding any abrasion in the loosened skin; antiseptic absorbent gauze is now applied over the surface, and held in position, either with strips of adhesive plaster, or the face mask. This is allowed to remain until it is desquamated by nature; if removed too soon the under skin is so sensitive that the patient will not be able to withstand the pain. The old skin forms a dense scab, which can be removed in a few days, leaving a beautiful, new, pink under skin. This process of scabbing is absolutely necessary to obtain the best results, but the face has a horrible appearance of one continuous scab, (see illustration), and unless the patient is advised beforehand, she will think her face is ruined; it is, therefore, often advisable not to allow the patient to see her face until the treatment is completed. I, therefore, keep the face mask in continuous use, until the last remnant of old skin is removed.



CRUSTOSIS AS RESULT OF VESICANT TREATMENT.

There is one more thing I wish to point out, viz., wherever this treatment is applied, and the skin removed, the final effects of the treatment are so perfect, and the new skin so clear and beautiful, that it makes the old, remaining, skin look like "the breaking up of a hard winter"; it is, therefore, sometimes necessary to remove all the skin of the face and neck, with either this or the ecorchment treatment, to give the face a uniform appearance, I often follow this blistering process with the ecorchment or other bleaching treatments, in order to obtain a uniform complexion; this and the ecorchment treatment are among the most highly prized "tricks" of the beauty specialists, and by using these methods singly, or combining the two,

we can eradicate many blemishes which were formerly rather puzzling to the physician.You can "lift" any form of discoloration, from cholasma to the more superficial birthmarks; while it is not as pleasing to the eye as the ecorchment treatment, it is more rapid and positive in action, and with due caution, no harm can be obtained from its use.

APPLICATION OF ADHESIVE PLASTERS AFTER ECORCHMENT VESICANT AND CARBOLIC ACID TREATMENTS.

CARBOLIC ACID TREATMENT.

Another still more heroic measure of destroying the outer skin is to apply pure Carbolic Acid; this treatment is used with a small brush, on the surface of the skin, and allowed to penetrate the integument, when a second or third coat is given. After the skin has become dry, the entire surface is covered with adhesive strips, (see illustration); this is allowed to remain for three or four days, until the outer skin sloughs, and suppuration takes place. The skin is allowed to remain' however, until nature desquamates the integument. This treatment is frequently resorted to in deep-seated smallpox pittings, and the most favorable reports have been obtained in many cases. Of late, I have been

using the rubber adhesive strips, as illustrated above, with the ecorchment treatment, instead of the gelatine compound, as it is more convenient to apply.

THE FACE MASK.

This is an appliance which is very much used in beauty culture, and consists of a thin rubber mask, which is supplied in three different sizes, to fit over the face tightly. Its principal utilization is for the purpose of forcing medicine, bleaching agents, etc., into the skin, as by direct pressure over the entire surface, it compels medication to be absorbed, and bears an important part in many treatments, the technique of which will be given later.

THE FACE MASK IN POSITION.

VIBRATORY FACIAL MASSAGE.

Vibratory massage is a very valuable adjunct for the treatment of many diseases of the face, and is used for the purpose of creating new activity to the circulation, acne, comedones, etc.; its stimulating effects forces out impacted secretions, and assists nature in many

ways which are conducive to eliminating disease and restoring the florid complexion.

FACE CREAMS.

Face creams are extensively used by at least one-half of the female population of the civilized world, for the purpose of making the skin soft, pliable and smooth, and also for bleaching purposes, and to remove slight blemishes. Preparations known as "cold creams" are mixtures of solid fats, like wax, spermaceti, petrolatum, lanolin, etc. Such preparations receive their name from the ingredients they contain, either for flavoring or some specific purpose; thus we may have rose cold cream, when flavored with ottar of roses, cucumber cold cream, when the juice of cucumber is used, etc. These creams are rapidly absorbed by the skin, and have much to do in preserving and beautifying the integument, and also protect the skin from atmospheric and other conditions. A good cream will be rapidly absorbed by the skin without having the appearance of oiliness. The following formula is a well-selected variety for different purposes:

VANISHING CREAM.

The above name is given this cream, because by rubbing the face with this mixture, it will, apparently, vanish without leaving the face oily.

℞ Pure stearic acid	1 oz. av.	26 grs.
Cocoa butter		77 grs.
Sodium Carbonate		308 grs.
Borax		77 grs.
Glycerine		405 mins.
Water	13 fl. oz.	252 mins.
Mucilage of tragacanth	3 fl. oz.	183 mins.
Alcohol	1 fl. oz.	7 mins.
Perfume		enough

Place all the ingredients, except the alcohol and perfume, in a capsule, over a water bath, and heat until

effervescence ceases. Remove the mixture from the heat, and when it begins to stiffen, add the alcohol containing the perfume, and mix well. Permit the mass to harden, and re-apply heat; beat up vigorously until fluffy and creamy, and place it in tubes.

ALMOND COLD CREAM.

℞ Spermaceti		2 oz.
White wax		2 oz.
Sweet almond oil		14 oz.
Distilled water		7 oz.
Powdered borax		60 gr.
Coumarin		½ gr.
Oil of bergamot		24 Min.
Oil of rose		6 Min.
Oil of bitter almond		8 Min.
Tincture of ambergris		5 Min.

Melt the spermaceti and wax, add the oils, and incorporate the other ingredients; this, and the other creams, may be called rose cold cream, by having the odor of rose predominate, and tinting a rose color by means of a solution of carmine.

BLEACHING CREAMS.

Are intended to remove discoloration of the skin, such as chloasma or liver spots, tan, freckles, etc., and depend upon bi-chloride of mercury for this purpose, which enters largely into most of the "patent" creams on the market, as in the following:

MELVINA CREAM.

℞ Saxoline	265 gr.
White wax	50 gr.
Spermaceti	30 gr.
Bismuth oxychloride	40 gr.
Mercuric chloride	½ gr.
Spirit of rose (4 dr. of oil to one pint)	20 Min.
Oil of bitter almonds	⅛ Min.

Warm the saxoline, white wax, and spermaceti together until melted; while cooling, incorporate the bismuth oxychloride and mercuric chloride, this last previously dissolved in a little alcohol, and when nearly cold, stir in the perfume.

DISEASES OF THE COMPLEXION.

The above caption may seem misplaced, yet it is under this head that all diseases having a tendency to interfere with the cosmetic appearance of the face may be discussed. We find the face a particularly favorite seat for a certain class of diseases, from which other parts of the body seem nearly immune; thus we find acne, and acne rosacea, comedones, warts, moles, chloasma, freckles, milium seborrhœa, etc. are in reality diseases of the integument of the face and scalp. We will not attempt to discuss the pathology of these diseases but will point out, as near as possible, a successful means of curing these conditions.

ACNE.

Acne is a chronic inflammation of the sebaceous glands, characterized by the development of papules, pustules or tubercles, or a combination of all these lesions, which may also include comedones. When this condition exists in combination, it is usually termed acne vulgaris. The cause of acne, although appearing in patients with apparently robust health, has been attributed to gastro-intestinal disorders, anæmia chlorosis, uterine disorders, etc., and is a frequent disease of puberty. The treatment of acne should consist of both local and constitutional measures. For a continual treatment, the following, in tablet form, has been of more service to me than any other medication. Each tablet contains:

℞ Arsenic . . . . . 1-40-gr.
Calcium sulphide . . . . . ½ gr.
Hexamethylenamine . . . . . 2 gr.
Ferrous carbonate . . . . . 5 gr.
Sig. A tablet after each meal.

In resuming the therapeutic value of the above formula, we find arsenic the oldest, and one of our most

ACNE VULGARIS.

reliable remedies for arresting chronic eruptions of the skin. Calcium sulphide is the first remedy to be thought of, when pus is present, in any condition. Hexamethylenamine is given for its antiseptic influence upon the gastro-intestinal tract, to arrest auto-intoxication, to which cause a large percent of acne is due. Ferrous carbonate is added for its blood building and general tonic effect.

Constipation is present in a large percentage of acne cases, and a suitable treatment should be employed, to relieve this condition at the outset of treatment.

Local medication is also of the greatest importance, and sulphur, in combination with an astringent, in the old "stand-by" lotio alba, answers this purpose as well as any remedy, to my knowledge, which I have modified as follows:

℞	Resorcin	½ dr.
	Zinc sulphate	2 dr.
	Potassium sulphuret	2 dr.
	Aqua	4 oz.

This may be made stronger or weaker as desired, as the different strength is required for different cases.

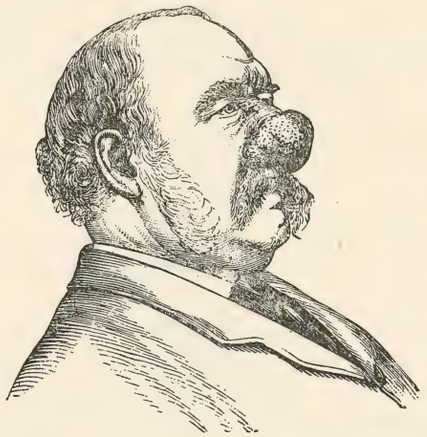
Ichthyol internally, and locally, is a valuable remedy in many cases. I have also had the most brilliant results with the ecorchment treatment, and have frequently applied this medication to the entire afflicted areas, which has resulted in a rapid and complete disappearance of the acne lesions. Phototherapy is another indispensable treatment, a decided solar erythema should be produced, and when the outer skin is desquamated, the acne will be found greatly improved. Electricity and vibratory massage are also valuable for their stimulating influence upon the skin. In all acne cases the greatest attention should be given to the diet, and every effort exercised to avoid auto-intoxication by keeping the bowels regular, and all the functions of the body in a normal condition.

ACNE ROSACEA.

Acne rosacea is a chronic hyperæmia, or inflammatory affection, usually appearing upon the nose, cheeks or chin. This may appear as a simple hyperæmia, or discoloration of the skin in the milder types, to a congestion and enlargement of the blood vessels in the prolonged variety, which has been known to develop into a typical lipoma, as illustrated here. The cause of acne rosacea is the same as other forms of acne, but a

large number of cases may be attributed to the excessive use of alcohol, (the tippler's nose), tea, coffee, etc.; whereby the stomach is kept in a continuous state of irritation.

A red nose is generally associated with cold feet and hands, denoting poor circulation. This disease may first appear as a blood stasis in the vessels, producing an undue redness, which, if neglected, will cause the blood vessels to dilate and become hypertrophied, and as a result of the obstruction to circulation, the sebaceous glands become involved and form papules



LIPOMA DEVELOPED FROM ACNE ROSACEA.

and pustules. The treatment of acne rosacea has many things in common with other acne medications.

Special attention should be directed to relieve constipation and keep the gastro-intestinal track aseptic and open. The acne tablets given above, are, in most cases, very serviceable. Equal parts of ichthyol and glycerine painted on the affected surface, at night before going to bed, covered with oiled silk and the face mask. This may be thoroughly washed off in the morning, and lotio alba applied several times during the day will produce excellent results in mild cases.

If the blood vessels are enlarged they should be destroyed by the electric needle, and do not forget that the ecorchment treatment was originally instituted for the purpose of curing acne rosacea, and it is often surprising the rapidity the action of this treatment has in many cases, while there are total failures in others.

The solar rays may be used, as in other acne lesions, to a good advantage; vibratory massage is also indispensable, to stimulate the skin to new activity.

COMEDONES.

This is also a chronic affection of the sebaceous glands, characterized by a retention, in the excretory ducts, of an inspissated secretion, which is visible upon the surface, either as white or yellow, which develops into black pin head elevations, hence the name "black heads;" this coagulated sebum may distend, and obstruct the gland, until a papule or pustule is formed; the duct may contain small hairs, and the microscopic mite demodex folliculorum, which was, at one time, erroneously supposed to be the cause of the disorder.

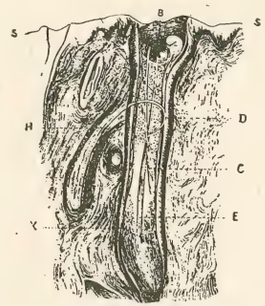
Blackheads appear upon the face, nose, forehead, chin and neck. They occur exclusively in the ducts of the sebaceous glands—see accompanying figure, where SS. represents the skin; K, the sebaceous gland with the duct opening on the skin; B, a black-head plugging up the opening; C and E, are soft hairs growing in the duct. In old age, when hairs grow out on the face, there are no black-heads. Each black-head consists of a whitish, fatty plug, formed by the secretion of the gland congealing, one end of the plug being visible at, and sometimes extending above, the surface of the skin. The exposed end of each black-head becomes blackened by diffused pigment deposited within. Sometimes both ends of the plug are discolored by a deposit of pigment.

The predisposing causes of comedones are the same as acne, and the same rules observed regarding the diet, etc. The local treatment should be directed to

stimulate the skin to new activity by vibratory massage, electricity, etc. The comedones should be thoroughly removed by pressure between the thumb nails or comedones extractor, see cut; a good astringent lotion should be applied several times a day, for which the lotio alba will answer the purpose, and the skin kept clean by the use of soap and water. The following ointment has rendered me good service:

℞	Sulphur	1 dr.
	Green soap	1 dr.
	Precipitated chalk	90 gr.
	Zinc ointment	1 oz.

Mix direct to cover the skin well on retiring. Wash thoroughly the next morning with warm water and



COMEDONE SHOWING INSPISSATED SECRETION.

soap, and most of the black-heads will disappear. The application may be repeated at intervals, until all are removed.

MILIUM.

This disorder resembles comedones somewhat in appearance, only the sebaceous glands are distended, without an opening, and remain white, while the comedones turn black when exposed to the air. The milia are planted under the epidermis, and cannot be removed by pressure, unless the skin is punctured. When there

are quite a number in one locality, as is often the case under the eye, I remove them en mass, by the use of the ecorchment treatment or blister. This entirely eradicates the difficulty, and leaves a nice, healthy skin underneath.

LENTIGO AND CHLOASMA.

Freckles and liver spots, in anatomical structures, are the same, and consist of an increased amount of normal pigment deposited in the mucous layer of the epidermis. Freckles are usually caused by the sun's rays, and consist of small, pin-headed deposits, which often disappear during the winter months.

Chloasma or liver spots are of larger size, variously shaped, more or less defined, smooth patches, either yellow, brown or black in color. They may be associated with either pathological changes, as in Addison's disease, or physiological conditions, as during pregnancy, and the menstrual epoch.

The following lotion will generally remove these pigmentary deposits, if applied several times a day:

℞ Corrosive sublimate . . . . . 5 to 12 gr.
Dilute acetic acid . . . . . 2 dr.
Sodium borate . . . . . 40 gr.
Rose water enough to make . . . . . 4 oz.

It is better to test the sensibility of the skin by the weaker solution, at first, increasing the strength as the point of toleration is learned. The idea is to induce a brany desquamation, and as soon as this appears, to suspend the application until the exfoliation ceases, when it is resumed.

If you should desire a complete and thorough removal, the ecorchment treatment is the process to pursue. Many of our female "Codfish aristocrats" will visit the sea shore, and other watering places, during the summer to obtain the rugged complexion,—tan and freckles;—and, upon returning home, will pay some beauty doctor one hundred dollars to make them a new

face, by the use of ecorchment process. Thus we find that "for ways that are dark, and for tricks that are vain," the heathen Chinese is not the only one that is peculiar.

POWDER MARKS.

Following each Fourth of July, and the opening of the hunting season, physicians are called upon to remove powder marks, as the result of accidents. These patients either consult the physician immediately after the accident, or dress their own wounds, and detain the consultation when they find their faces are permanently disfigured, by these unsightly black specks. If the patient is seen immediately after the accident, the process of permanently destroying these marks is rather an easy procedure, but if the skin is allowed to heal over the embedded powder, we have a more difficult condition to deal with. We will, therefore, outline the treatment used in the different stages.

If the patient is seen immediately after the accident, he will, generally, rebel against any interference, stating that the parts are too sore and painful, but by explaining to him that a "stitch in time saves nine," will consent to your advice, and it is usually best to give a general anæsthetic in nervous cases.

When powder is forced under the skin it has provided an open wound, and we have direct access to each grain of powder. If the open surface is large, many of the deposits may be scraped out with the point of a knife, but the powder becomes soft when it comes in contact with the tissues, and is difficult to remove; therefore the best, quickest, and easiest method to pursue is to thoroughly scrub the entire area involved, with a stiff antiseptic nail or tooth brush, dipped into a full strength solution of peroxide of hydrogen. The minute wounds are somewhat aggravated by the bristles, but in no way deter the process of healing, and to be sure you are removing every remnant possible, the skin should be pinched up in folds, between the thumb and

finger, that it will open the wounds, and reach the deeper seated particles. This will often be followed by "bubbling" at point of entry of the powder grains; after this has ceased, it will be found that nearly all the powder has been washed out by the bath and effervescent process. A saturated solution may now be applied to the face with absorbent gauze, and allowed to remain a few hours; the minute wound has, by this time, closed, and all dressings may be removed.

As a rule, this procedure will thoroughly remove all powder marks. Should any remain, they may be treated, later, by pricking an opening to the stain, and applying the peroxide of hydrogen.

The second class of cases are those which were neglected at the time of the accident, and consult you after the openings have healed, containing the embedded powder; here we have a more tedious condition to deal with. Each mark may be opened with the point of a knife, and removed with the peroxide of hydrogen treatment. They may also be removed with the electric needle, as is superfluous hair, or trephined out, with a small dermal punch, about the size of a watch key. A slight rotary motion will remove a "button" of skin, containing the discoloration, which is snipped off with scissors. These are all very tiresome procedures, and it is here that our ecorchment treatment, and canthos blister serves us once more. If the discoloration is deep seated, I prefer the blister; if more superficial, the ecorchment treatment will suffice. Either treatment will, usually, completely eradicate every trace of the marks.

TATTOO MARKS.

Tattoo marks are generally embedded deeper in the skin than powder stains, which makes them more difficult to remove. The first treatment used is the Canthos blister. This blister is applied to the entire surface, if not too large, and removed in about four hours. This will be followed by a large vesicle, which may be punctured, at its base, and dressed with absorbent

gauze; held in place by adhesive plasters. At the end of about a week, the scab will desquamate, taking with it a large proportion of the mark; if there is any remaining, another blister should be applied at once, and continue these treatments until you have "lifted" as much of the mark as possible, and in many cases you will entirely remove these disfigurements. Any remaining traces may be removed by the Ohmann-Dumesnil method, which consists of tattooing the design over again with a bundle of six or ten very fine cambric needles, tightly wound with silk thread, dipped in a glycerine solution of papoid. This is repeated over the entire stain; a local anæsthetic is previously used, to obtund the pain of the surfaces. If of quite large size, it may be treated at one sitting. The rationale of this method is based upon the following principles: the digestive principle of the papoid is disseminated about the deposit of pigment, thus liberating it, a portion is absorbed, in a finely divided state, by the lymphatics; another part, probably, finds its way into the upper layers of the epidermis, and thence to the surface. In this manner, we obtain a disappearance of the pigment, by using either of these methods, or, combining the two, little difficulty is experienced in removing these otherwise indelible marks.

SMALLPOX PITS.

Small-pox, acne-pustulosa, and chicken-pox are diseases which often leave the face in a terrible state of repulsive disfigurement, and the physician who can successfully eradicate these ravages of disease can always demand a liberal compensation for his services; it is these methods which are most secretly guarded by the advertising cosmetic specialists. In these conditions, we have cicatricial tissue to deal with; in fact each pit is the result of a minute abscess of the true skin, and connective tissue, and in order to be successful with our treatment, we must remove all the superficial tissue, and dissolve the remaining cicatricial tissue, as far as possible.

The epidermis may, therefore, be removed, either by the ecorchment, blister or phenol method, and as soon as the outer skin has been removed, which takes with it the greater number of pits, fibrolysin is placed over the entire surface, saturated with the solution, and held in place by rubber adhesive bandages and the face mask; or thiosinamine used by catophoric application, as described in treating scars.

WARTS AND MOLES.

Warts and moles are the most common of facial blemishes, and are also the most easily removed. Of the numerous remedies and methods, the chemical ones should be the first to consider; before removing these growths by this means, the healthy skin, surrounding the growth, should be thoroughly painted with collodion, to protect the healthy skin. I generally do this at the office, and give the patient a small vial of glacial acetic acid, and instruct her to dip a wooden tooth-pick into the solution, and apply it to the wart or mole several times a day; at the end of this time, the wart or mole will form into a scab, and gradually disappear, leaving very little scar. This is the mildest way; sometimes this may fail, which is very seldom. I then use some of the stronger acids, trichloracetic acid or nitric acid; they may also be removed by electrolysis or carbon dioxide snow, etc.

WRINKLES.

If there is any one thing that a woman utterly despises it is a wrinkle, and as soon as she witnesses these landmarks of age developing she, generally, seeks the "beauty sharks" for creams, pastes and lotions, that she may maintain perpetual youth; as a rule, they do not seek the advice of the dignified physician; yet any advice the physician may impart will be gratefully received by most women, and the process of arresting the development, and removing these unwelcome visitors is

equally divided between medical, mechanical, manual and surgical means. We will briefly discuss the subject, before entering the surgical field of cosmetics.

Wrinkles are caused by a relaxed condition of the skin, due to the absorption of the subcutaneous tissues, in some cases, and lack of tonicity of the integument itself, in others. We therefore, find a demand for a variety of treatments, with a view of toning the skin to its youthful activity; manual and mechanical massage has always played an important role. Great care should be exercised with these treatments not to massage with too great a force, as such treatments will invariably do more harm than good; only the cushioned end of the fingers should be used, or the softest kind of rubber; with the bell vibratode, the gentle percussion stroke is preferable to the stroking movement.

One of the best means of applying massage to the face is with vibro-hand apparatus, see illustration; with this, you can execute the delicate touch with the finger tips, and vibratory movements from this instrument, with little or no exertion from the operator. The effect from this treatment is very exhilarating. We are indebted to Zabludowski for the most scientific system of facial massage, which can be conducted by either manual or mechanical means, or a combination of the two, as illustrated above. The Doctor gives the following:

FACE MASSAGE.

For a special massage of the face and neck, which must be continued for several weeks, or even months, to obtain a noticeable result, Zabludowski gives the following directions: "The massage is best performed in the morning, and should last for a quarter of an hour. The parts covered with hair, whether shaved or unshaved, are to be avoided by the fingers. The masseur stands at the side or behind the patient.

1. Stroking and kneading of the forehead.

Kneading is done with the right hand, which moves zigzag wise across the forehead, beginning at the bridge of the nose and traversing the forehead as far as the margin of the hair; whilst the left hand, with light stroking movement, beginning at the frontal eminences, travels lengthwise over the forehead to the mid-line of the occiput.

2. Kneading of the nose with the balls of the thumbs and index-finger of the right hand.

The zigzag-like light vibratile movement proceeds from the tip of the nose to its root, and extends laterally over the alæ nasi. The left hand of the masseur supports the occiput.

3. Kneading of the left cheek, double movement.

The right hand, half closed, moves across the face from within outwards, and vice-versa, and at the same time moves upwards, beginning from the lower jaw to the cheek-bone, below the lower eyelids.

4. Kneading the right cheek with both hands half-closed in the vertical direction.

Chiefly done by the thumb and index-finger; the latter bent at right angles. The movement extends outward from the lower jaw and right ear over the malar-bone to beneath the right lower lid.

Smoothing the lines of the forehead.

Stroking with the index and middle fingers of both hands across the forehead from the middle line to the temporal region.

6. Vibration of the face.

The digits of both hands, with the exception of the thumbs, are applied to the cheeks, between the malar eminences, and the ascending ramus of the mandible,

and execute shaking movements, whilst the tips of the fingers approach, and move away from each other in the quickest possible time. After a number of vibrations on one part of the face, the vibrating fingers are transferred to another part. The thumbs hang free in the air.

VIBRATORY FACIAL MASSAGE.

7. Stroking the lines under the eyes with both thumbs.

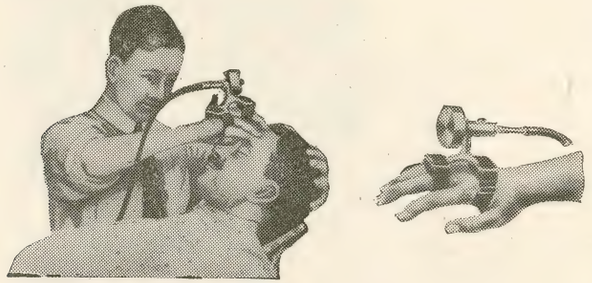
The movement begins on the bridge of the nose at the root, and is continued over the cheek-bones beneath the lower eyelids as far as the temporal region.

8. Stroking the lines between the chin and lower lip.

The movement is executed with both thumbs, beginning close to the lower lip, and is continued to the ascending ramus of the lower jaw. The masseur stands on the right of the patient.

9. Kneading of the neck.

The movement begins close beneath the chin, descending upon the throat, and following the direction of the neck as far as the upper extremity of the sternum.



VIBRO HAND VIBRATOR.

10. Stroking and kneading of the right shoulder.

Whilst the right hand, beginning at the upper third of the right arm, makes kneading movements in a transverse direction over the shoulder-joint, the left hand travels with a stroking movement, following the right hand, over the region of the shoulder, upwards upon the neck as far as the level of the ear."

One of the simplest and best methods of facial massage is by means of Bier's suction glasses. These glasses will obtain sufficient suction to maintain the cup in position without support, (see illustration.) These can be moved about the face in any direction, and will retain the suction, and is one of the most invigorating treatments in our possession.

Another very popular method to remove wrinkles is by the use of the face mask, before applying the mask, the entire skin of the face is stretched backwards and downwards and the mask is adjusted as tightly to the

skin of the entire face as possible. This smooths out the wrinkles, and by continuous use most excellent results may often be obtained. The mask may only be used at night.

APPLICATION OF WRINKLE ERADICATORS.

Another similar treatment of pressing out wrinkles is known by the alluring name of "Wrinkle Eradicators and Frowners," and are sold in large quantities, by a

company in Cleveland, Ohio. These plasters, however, are not to be compared with the common adhesive plaster, which has more body to retain the skin stretched, after being applied. These plasters are used at points where wrinkles are found in profusion, as at the corner of the eye, for crows feet, under the eye, etc. The method of application is illustrated in the accompanying drawings.

METHOD OF APPLYING WRINKLE ERADICATORS.

COMBINATION TREATMENT.

One of the most invigorating and effective home treatments for the removal of wrinkles, and keeping the face young, is by combining several of these methods as follows: the face is first massaged with the hand, with the vanishing face cream; this is followed by the Bier's cup, the adhesive plasters are applied to the deep seated wrinkles around the eyes, forehead, etc., over which the face mask may be applied. The only time this treatment is used is just before retiring, as the face during the sleeping hours is placid. All these dressings are removed in the morning, and the face massaged for the day. By following this treatment for sometime, it is often surprising; the youthfulness which can be restored to an old face. Many facial specialists precede

this treatment with the ecorchment treatment, which also adds to the beauty of the integument.

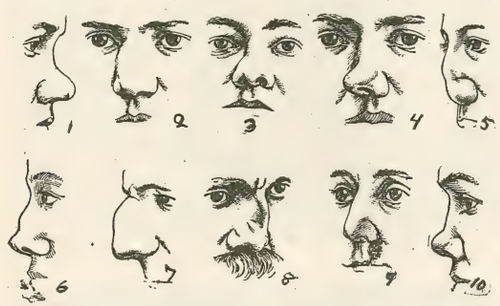
The surgical treatment of wrinkles consists, principally, of paraffin injections, to fill in deep crevices, and what is referred to as "wrinkle tucks." Paraffin may be injected under deep crevices of the face, as the

RESULTS OF COMBINATION TREATMENT FOR WRINKLES.

naso-labial line, and the transverse furrows of the forehead, to raise the skin to a level with the rest of the face.

Wrinkle tucks are taken about one-quarter of an inch back from the hair margin in the scalp. The scalp is shaved, and various sized pieces of skin are dissec-

ted away, and the edges of the wound united. This draws the skin of the face up and back; after this wound has healed the hair is combed back, which covers the wound. These tucks are also sometimes taken below the inferior maxillary bone, to draw the skin down and back. Such operative procedures may seem ridiculous to the conservative physician; yet it is these operations which fatten the purse of many unethical and ethical physicians.

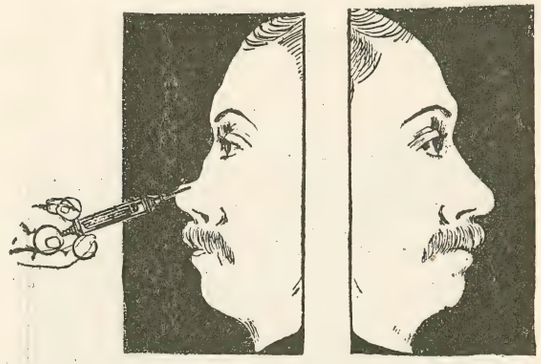


VARIOUS DEFORMITIES OF THE NOSE.

DEFORMITIES OF THE NOSE.

The nose is the protruding organ of the face, and is, therefore, the most often injured or deformed by accident or otherwise; it was this part of my anatomy which always seemed to be in the way during pugilistic contests in college days. These deformities are extremely conspicuous, and have been classed as follows: (See cuts 1, 6 and 10, illustrating the different degree of concave, or what is referred to as the saddle back nose. These deformities are often found at birth, but are generally due to a severe blow, completely or partially, breaking the bony frame work, or bridge, giving the nose a very unpleasing appearance. Cuts 2 and 7 represent the humped nose. This deformity is not what is generally called the Roman nose, as the bridge is much broader, and gives the nose a very clumsy and massive appearance, independent of its con-

vex shape. Cut 3 is the broad nose as is found in the negro. Cut 4 represents the lateral tipped nose, which is generally due to accidents of the cartilaginous portion of the nose. Nos. 5 and 8 are the receding nose, which is usually caused by syphilis, scrofula and other destructive diseases of the septum. Cut 9 is the narrow nose which not only gives the face a miserly appearance, but often interferes with respiration. We also have the bulbous nose, the hawk billed nose, the



METHOD OF INJECTING PARAFEIN FOR CONCAVE NOSE.

split septum, etc. Each deformity representing different characteristic forms of unpleasing conformity, which require our personal attention, to adjust and restore to a natural and pleasing contour.

Of all the deformities of the nose the concave or saddle back nose, (Figs. 1, 6 and 10), is the most frequently met with, and is also the easiest to restore to its normal shape, by the use of paraffin injections, as follows: the paraffin is prepared at a melting point, between 110 and 115 degrees F. The nose and instruments are treated antiseptically, the needle of the syringe, containing the paraffin in a semi-solid or half cooled state, is inserted to a point of the greatest depression in the convexity, and while the assistant is

making pressure on both sides of the nose, to avoid having the paraffin spurt in some open channel, where it is not desired, the screw on the piston stem is gently turned, and after sufficient paraffin has been injected to raise the surface, it is molded into shape either by the assistant or surgeon. Great care should be exercised not to inject too much paraffin, as these injections are followed by inflammation and infiltration, which subsides, leaving the tissues somewhat thickened, and if care is not exercised in this point, we may convert a concave nose into a convex one. The opening should be sealed with collodion and the nose treated with aseptic dressings.

THE CORRECTION OF PUG NOSE.

THE HUMPED AND ROMAN NOSE.

This deformity, (Figs. 2 and 7), is restored to its normal shape by an oblique incision, to prevent scar tissue. The incision is made along the median line. The opening is enlarged sufficiently to admit the instruments required, which consist of bone scissors, rongier forceps, and a slender saw, and such other instruments as may be necessary. After the skin is elevated from the deformed surface, the nasal bone is sawed off, and the edges trimmed smoothly, with a pair of slender bone-clipping forceps, so as to give the nose the exact contour desired. After the parts are thoroughly cleansed, and rendered aseptic, the skin is replaced, and united in as close apposition as possible, to avoid scar tissue. What scar tissue remains may be removed, later, by the usual way of removing this tissue.

THE BROAD NOSE.

This deformity, (Fig. 3), which resembles the negro nose, is corrected by overcoming the elasticity of the wings, by incisions through the shield cartilages, subcutaneously, with a slender knife, in several places, and then holding them in place, by an external form, until they are firmly fixed in the desired position. In some cases the cartilage is so redundant as to require the excision of a portion of the same.

THE CORRECTION OF NARROW NOSE.

THE NARROW NOSE.

This deformity, (Fig. 9), is corrected by incising the cartilage at its base, and forcing the cartilaginous wings outward from the septum, and holding it there by sutures, and mechanical means; by inserting antiseptic "plugs" into each nostril, and retaining them there until the cartilaginous tissues are firmly fixed.

THE TILTED TIP NOSE.

To correct this deformity, (Fig. 4), a narrow bladed knife is inserted at the margin of the skin and mucous membrane, at the middle of the septum, and the point of the knife is directed upwards to the point of bone

and septum, or the angle of the tilt. The septum is divided, and the tip of the nose is forced to the opposite side, and a little beyond, and held in this position by mechanical means, with "plugs" within the nostrils, and rubber adhesive strips, passing over the nose, and attached to the cheek, after the septum has been reunited, the dressings may be removed, but if the tip has a tendency to go beyond the median line, the adhesive strips should again be applied until the tip of the nose is trained to its normal position.

THE RECEDING NOSE.

This deformity, (Figs. 5 and 8), is often one of the most difficult derangements we have to correct, as the

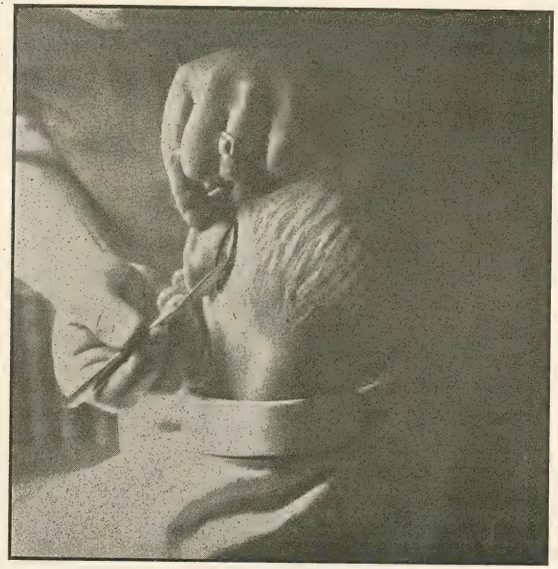
METHOD OF INJECTING A RECEDING NOSE.

septum is often destroyed, either by accident, or disease, of which syphilis and scrofula bear their destructive influence. We may build out many of these receding tips with paraffin, as is illustrated here, but if the septum is so destroyed that it will not bear support by artificial means, as is the case with all deformities of the nose, there are no two cases exactly alike, and it will depend upon the surgeon's judgment and mechanical genius to find a way of properly adjusting these deformities of the nose. In this class of deformities, we may be required to supply a silver or other metallic

support, embedded in the tissues, or force support from some other source. The same rule applies to surgery of the nose, as in other parts of the body, and if a patient has an abundance of tissue he wishes to dispose of, cut it out, or fill in the deficiencies by any of the means offered in modern surgery.

PROTRUDING EARS.

Protruding ears may be either hereditary or acquired. The latter condition is frequently the result of



LINE OF INCISION FOR CORRECTING PROTRUDING EARS.

wearing a stocking cap by children. I have had two very interesting cases traced to this cause, which came from Upper Canada. The boys were exposed to the cold much of the time during the winter, and would pull their caps over their ears, which trained them to protrude. The same treatment may be used to force them back to their normal position, by the use of the ear truss, (as is illustrated here), or a slight operation

will rapidly return them to their natural condition. The technique is as follows: The line of incision is marked off, behind the ear, on both the mastoid process and ear, so that the apposition of the skin, at the border of the surfaces will meet perfectly; the integument is now removed, and the borders of the skin united with sutures, and dressed antiseptically. To hold the ear in contact with the mastoid surface, a cloth bandage is placed around the forehead, and back of the head, and one over the head and under the chin. These bandages are held in place by reinforcing them with adhesive strips; this is the most popular way of "resetting ears," as it is frequently referred to. Other operations consist of removing parts of the cartilage.

RECEDING CHIN, HOLLOW CHEEKS AND DEPRESSED SCARS.

It is these operations in which the use of paraffin reaches its greatest degree of usefulness, and can serve for the noble purpose of restoring contour to unsightly depressions, and defects, which cannot be reached by any other means, and in this capacity its usefulness is almost unlimited, grading in degrees of magnitude, from elevating a small pox pit to the complete filling in of cavities, after resection of bone, from the upper and lower jaws, and other parts of the face. The writer had one case of congenital malformation, hemiatrophia facialis, in which nearly five ounces of paraffin was injected, to restore contour to the face, and the result was almost perfect.

The receding chin, small-pox pits, depressions from abscesses, the eradication of the naso-labial line, hollow cheeks, and many other deficiencies may be restored to perfect contour by the use of paraffin.

It was formerly believed that liquid paraffin would answer the purpose for elevating surfaces upon the face, and leave the tissues soft and pliable, but these operations were failures, as the paraffin would become absorbed, in a few months' time. There is a great deal of tension when paraffin is injected over bone, and the

melting point should never be lower than 110 degrees F., and it is still better to use a higher melting point for receding chin.

The technique for the use of paraffin is given elsewhere, which applies, in general, to all paraffin operations; we therefore, refer you to the preceding chapter.

SCARS AND BURNS.

The removal of cicatricial tissue, as the result from cuts, burns, bruises, abscesses, etc., is one of the most frequent blemishes the physician is requested to remove, and the treatment required, and the degree of success obtained, will depend upon the length and breadth of the scar. In order that I may implant firmly in the reader's memory, I wish to repeat what has already been said, in a preceding page, "we may mutilate, cut, bruise, or destroy the first four layers of the skin as much as we like, without leaving any cicatricial tissue, but when we go below the epidermis into the true skin, our operations are always marked by the formation of cicatricial tissue.

We may desquamate the outer skin, and draw to the surface cicatricial tissue, from the true skin, by a process of blending and absorption, by continually removing the outer skin. In order that I may demonstrate this process I will cite the following case:

Mr. H., was kicked by a horse when nine years old, resulting in a depressed scar, about three inches long and three-quarters of an inch wide; the wound was united at the time, which was followed with septic infection, with considerable sloughing of tissue, which left a deep depression. The first step to be considered was to dissect away all the cicatricial tissue, and unite the edges of the integument in as close apposition as possible, (see scarless surgery); we now have left a slight line of cicatricial tissue, and a deep depression to deal with. The next step was to elevate the depression by an injection of paraffin to a level with the face;

this was allowed several weeks, for the reaction to subside, and thoroughly heal, and the only trace left was a fine lineal scar where the skin was united. The patient was so well pleased that he wished it to remain as it was, but I encouraged him to completely eradicate every mark possible. I, therefore, proceeded to apply a thin strip of Canthos blister plaster, along the entire line of incision; this was applied at five different times, which still reduced the cicatricial tissue, so that it could not be noticed at six feet distance. The patient was then given a ten percent thiosinamine ointment which was applied for some weeks; today, it will almost require a magnifying glass to find any trace of scar tissue, and the operation may be considered perfect.

Within the last two years I have used the thiosinamine by cataphoresis as suggested by Dr. Nieswanger.

Thiosinamine, and its double salt, fibrolysin, is used to such an extent in the treatment of many diseases given in this publication that it is well to have a clear conception of the therapeutic value of these two products.

THIOSINAMINE AND FIBROLYSIN.

Thiosinamine is a synthetic preparation made from the artificial oil of mustard, and appears in clear crystals, of faint garlic odor, and bitter taste, and is only slightly soluble in water, but can be made more soluble by the addition of glycerine and aqueous solution. It is very soluble in alcohol and ether, but, owing to the pain caused by the hypodermic injection of alcohol, it has been superseded, under the coined name of "Fibrolysin," which is a double compound of thiosinamine and sodium salicylate. It was first prepared by Dr. F. Mendel, of Essen-Ruhr, who, by combining two molecules of thiosinamine with one molecule of sodium salicylate, produced a white crystalline powder, soluble in both hot and cold water. This he found unirritating when injected.

Fibrolysin has the same indications as thiosinamine; it is a cicatricial and glandular resolvent; but it has the advantage of quicker absorption, and freedom from pain or irritation, upon injection, on account of its solubility and aqueous vehicle.

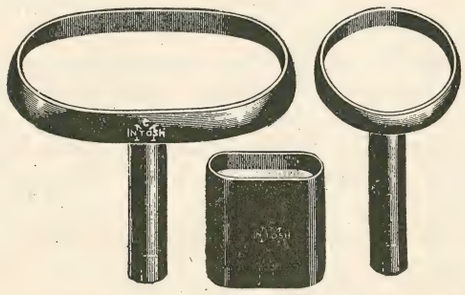
Most authors agree that thiosinamine alone is ineffectual when given by mouth, while subcutaneous application is unsatisfactory, owing to its slight solubility in water, and the pain which always follows when given in alcoholic solution. On the other hand, when combined with sodium salicylate, in the form of Fibrolysin, if the usual antiseptic, and other precautions are observed, injections are painless, and irritation at the site of an injection rarely occurs.

We, therefore, find that the therapeutic application of thiosinamine and fibrolysin may be utilized, either internally, in one-half grain doses, by inunction, in a ten to twenty-five per cent ointment, by hypodermic medication, (fibrolysin), and by cataphoric application. With these four methods of medication at our disposal, we are not only able to dissolve cicatricial tissue, as found in scars, strictures, corneal opacites, etc., but also to reduce hypertrophied glands, and superfluous tissues, thiosinamine being preferred for cataphoric purposes in the following formula:

℞	Thiosinamine	½ dr.
	Glycerine	1 dr.
	Aqua dis.	1 dr.
	Sodium chlor.	3 gr.

A piece of absorbent lint is cut to cover the surface of the scar tissue, if not too large, and saturated with the above solution. This is placed in a special electrode, (see cut), and applied firmly against the scar, using the positive pole of the galvanic battery; the negative pole is placed at any convenient place, and the current turned on, in strength from four to twenty milliamperes. Each sitting should be continued about ten minutes; in three or four days the skin, over the

scar, will become dead, and peel off, when another treatment may be used until the scar tissue entirely disappears.



CATAPHORIC ELECTRODES.

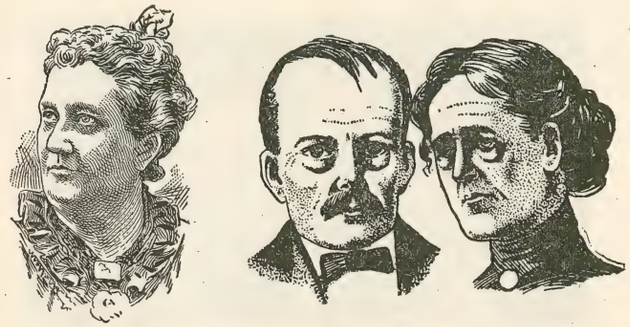
GOITRE.

This same procedure is also used for fibrous degeneration of the thyroid gland, with marked success; the positive electrode being packed with absorbent gauze, and saturated with the thiosinamine solution, can be applied to sections of the goitre, until the entire enlarged surface is treated, in different areas. The best place to apply the negative pole, for the treatment of this affection, is upon the abdomen; the amount of current tolerated, by most patients, is from twelve to twenty milliamperes to obtain success. Patients should receive three treatments each week, and the duration of each treatment should be about ten minutes. Solutions of iodide of potassium have also been used to a good advantage by cataphoric applications.

PUFFINESS UNDER THE EYES—DOUBLE OR BAGGY CHIN.

Puffiness under the eyes has always been associated with Bright's disease, and other kidney disorders; although the condition may be a symptom of kidney disorders; we often find that it presents itself spontaneously, in perfectly healthy people, and is one of the most damaging disfigurements to the facial appearance, as it produces an expression of sadness, melancholy, or ugliness, and many faces, which otherwise have a fine complexion and contour, are ruined by this "bloating" under the eyes.

The double or baggy chin, which consists of a superfluous amount of flesh, hanging from the chin, reacts to a disadvantage in many ways; it not only mars the general contour and expression of the face, but also draws deep lines elsewhere on the face, and it is surprising to note the wonderful improvement which takes place after removing this superfluous flesh. The skin of the face proper becomes more tense and transparent, the deep lines disappear, and the general expression assumes a more youthful appearance. In both of these conditions we have a superfluous amount of flesh to deal with, and it has been the custom of featural surgeons, in the past, to deal with these conditions purely upon a surgical basis, and dissect away this overamount of redundant tissue. More satisfactory results have been obtained by making compresses of the thiosinamine solution, as used for goitre and scars; to obtain results, a pad of absorbent gauze is saturated with the solution, and applied over the area of superfluous tissue. This is held in place, so as to make heavy pressure, during the sleeping hours, and held in position with adhesive strips under the chin, and over the head,



BAGGY CHIN AND PUFFINESS UNDER THE EYES.

for a baggy chin, and the face mask is used for both the chin and puffy eyelids. This preparation is also used by cataphoresis, as in goitre, and for removing scar tissue.

BIRTH MARKS.

Chief among facial blemishes, which constitute a sad disfigurement, that renders the possessor a recluse from society, are birth-marks, (pigmentary nævi). These marks are generally noticed at birth, hence their name,

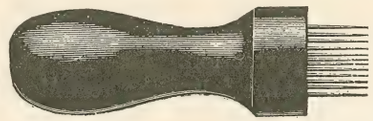
RESULTS OF CARBON DIOXIDE SHOW FOR THE REMOVAL OF BIRTHMARKS.

and come under the classification of tumors, by the name of angioma, to which you are referred; these tumors consist of a net-work of dilated blood vessels, either arterial or veinous. Until within recent years these marks were not considered removable, and their unfortunate possessors were doomed to exist with these "princes of disfigurement," and obstacles, throughout their lives, which were a constant annoyance in both a social and business way.

Modern therapeutics offer many methods in which these marks may be removed. The point aimed at is to destroy, or contract these anastomosing, dilated vessels. Very superficial marks may often be removed by the blister treatment, but the deeper seated lesions will require a more destructive influence, for which carbon dioxide snow perhaps offers the greatest advantage;

the technique for using this, for birth-marks, is the same as for other neoplasms, given elsewhere. It will, therefore, not be necessary to repeat the details here; the accompanying illustration shows the results, which may be obtained from this indispensable element, and if due caution is exercised, not to freeze too deeply, the cosmetic effect is the best at our disposal. Most excellent results have been obtained by the use of trichloracetic acid for this purpose.

Electrolysis offers us a means of cauterizing these minute blood vessels, and obliterating the discoloration and disfigurement they produce. The area is anæsthised, either by hypodermic injections of quinine and urea hydrochloride, or by the cataphoric application of cocaine. A sharp pointed needle, attached to the nega-



ELECTRODE FOR MULTIPLE ELECTROLYSIS.

tive pole, is entered at the border of the mark, to transfix the growth beneath the skin, in lines of about one-twelfth inch apart; this is followed by the same process in a transverse direction, until the growth has been blocked, like a checker-board, (see illustration). This thoroughly cauterizes the small blood vessels, and in a few hours, the mark will assume a brown appearance, which forms an eschar that desquamates in a few days, taking the mark with it. If any remnant should remain, it may be followed with other treatments, until it entirely disappears. Caution should be exercised not to cauterize too long, or too deeply, lest an unsightly scar may result. It is the practice, nowadays, to use several needles, (see illustration), on one electrode, instead of the single needle, as it saves time. This process is referred to as multiple electrolysis.

Dr. Nieswanger highly recommends the following, where the mark is not elevated:

℞ Antim. tart . . . . . 1 dr.
Soap plaster . . . . . 3 dr.
Green soap . . . . . .1 dr.

M. This is applied on adhesive plaster, about 1-12 inch thick, over the entire surface. The healthy border should be painted freely with collodion, to protect the normal skin; at the end of from three to five days, the full escharotic effects are evident, and the plaster removed, and the surface dressed with

℞ Zinc oxide . . . . . 20 gr.
Cold cream . . . . . 4 dr.

This treatment will produce excellent results in many cases.

HARE-LIP AND CLEFT PALATE.

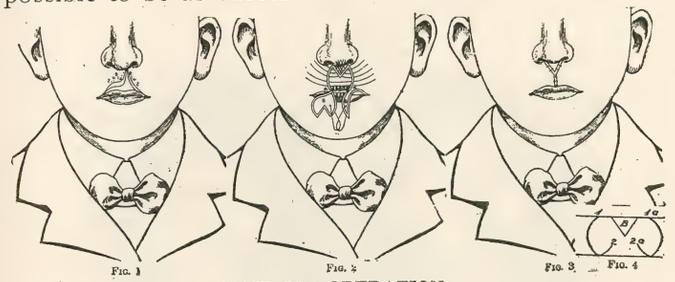
These two deformities come within the scope of the featural surgeon, and it is well to consider the best means for their correction. Dr. D. La Ferte, in a recent article, gives the following technique for the correction of hare-lip, which will leave only a slight trace of the operative procedure:

"In the treatment of hare-lip the efforts of surgeons for the most part have been directed toward closing the fissure in such a manner as to make the lip of uniform thickness, and to avoid leaving a dimple in the vermilion border of the lip at the junction of the two flaps.

Little effort has been made, in planning the different operations, to so plan the trimming of the edges that in the male child when he grows up and desires to wear a mustache the part in the mustache may be in the median line and not to one side of the column of the nostrile. I venture the assertion that many grown-up individuals whose mustaches part to one side on account of a previous operation for hare-lip would willingly submit to an operation for remedying that defect if they were cognizant of the fact that such an operation was practical. Another point that has been sadly neglected is the flattened and depressed nostril that is generally found on one side of the nose.

The late Dr. A. M. Phelps was the first, I believe, to call attention to the desirability of throwing the scar in the median line of the lip. The drawings in this article are largely copied from an article from his pen.

The object of the operator should be to make as artistic a lip as possible, and not only to close the fissure in as easy a manner as possible. He should try to have a lip that shows a graceful curve from each corner of the mouth to the median line, where it should terminate in a slight prominence, as seen in Fig. 3. That should be our aim, but it is not always possible to be as successful as we desire.

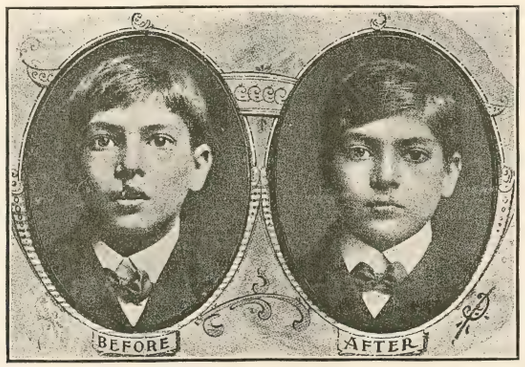


HAIR LIP OPERATION.

Describing the different steps of the operation should aid in its understanding. First take a loop of silk through each angle of the lip, at 4 right side and at 4 left side (Fig. 1). These are made taut by traction with the left index-finger, which aids to steady the parts, and thereby facilitates the other steps of the operation. By means of scissors or knife the lip together with the depressed ala of the nose are dissected from the bone, and if deemed advisable the ala of the nose may be slightly detached also upon the other side. The upper lip must be sufficiently detached so that it can move freely over the bone. With a tenotomy knife puncture the lip at *aa*, Fig. 1, the parts being put upon the stretch by making slight traction on the silk loops. The incision should describe a curve, following the dotted line to 2, and from there to 3 (see Fig. 1); then cut from 3 to 4 through the entire thickness of the lip.

(Fig. 1). The pieces *B* and *B* are now turned downward, leaving the V-shaped piece seen in Fig. 2. Now sew the raw edges together (I prefer fine silk for that purpose), when the result will appear as shown in Fig. 3; raise the lip and sew the mucous membrane as high as possible.

We should always allow for a certain amount of retraction. Therefore care must be taken that the pieces *B* and *B* shall be longer than is actually necessary. If there is too much redundant tissue, that can be trimmed off at the last stage of the operation. This operation is practicable in all cases of single hare-lip



RESULTS OF OPERATION.

where one-quarter of the length of the lip remains between the fissure and the corner of the mouth. The punctures at 2, Fig. 1, should be at equal distance from each corner of the mouth, and both nostrils should be entered at the same point on each side (3, Fig. 1). The V should be about one-half the normal width of the lip. If the V should be cut too short, the defect can be remedied by making a transverse cut through the whole thickness of the lip around the ala of the nostrils. If the V is left too long, it would cause the middle of the vermilion border of the lip to drop too far down at the median line. These same incisions can be

made in cases of double hare-lip, saving the center from which the V is made (Fig. 4). This figure gives a good illustration of the manner in which the incisions are made in cases of double hare-lip.

I had occasion lately to put this operation in practice at the Children's Free Hospital for single hare-lip in a boy fourteen years of age, who said he had been operated on twice for his defect since birth, and whose lip when he came to me was in the condition represented in the accompanying illustration.

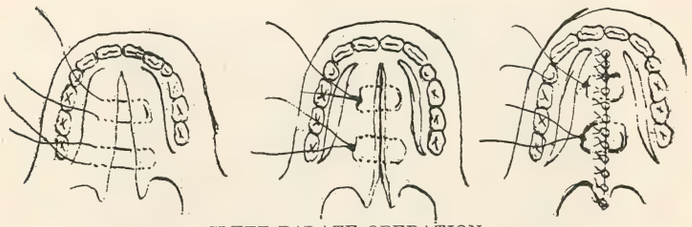
My incisions were planned as indicated in Fig. 1, and the flaps brought together as shown in Fig. 3; the result shows an artistic lip with the scar directly under the column of the nostrils (Fig. 6).

This method of operating I have followed for some time, and I feel pleased with the results.

Where one nostril is depressed and the ala of the nose upon one side spread out upon the face, I dissect the ala of that side from the bone and put in a button suture, penetrating from the depressed and loosened ala through to the fixed ala of the opposite side. In about five days the suture is removed, when the lip will be found to have become attached to the raw surface of the bone underneath and the wing of the nose to have become elevated.

Dr. Dean Smith's operation for cleft palate is performed as follows: The flaps are made in the usual way, cutting the muscles that would interfere with the easy bringing together of the margins. The edges being pared, the mattress sutures are introduced and tied. These are of silkworm gut. In placing them, the needle enters the flap near the end, about midway between the margin, and the lateral incision. It passes obliquely through the tissues, and emerges on the under (upper, according to the position of child), side near the free edge. The needles enter the other flap on the under side, near the margin, and opposite to the point of emergence from the first flap. It passes obliquely upwards, through the tissues, coming out on the free surface, at the same relative position that it entered

the first flap. It now retraces its course through the flaps, parallel to the first part of the stitch, and about a quarter of an inch from it. This thread makes the mattress suture, and when it is tied, it will bring the margins together. Rather, it will bring the lower edges of the margins together, rolling the outer edge out. This will give us the broadest possible coating surface, when the marginal sutures are placed. Two or three mattress sutures will be required to control the whole length of the flap. It is evident that if these stitches are properly placed they will take all tension off the coapting, or marginal sutures. I have seen it stated by one surgeon that he uses silk, instead of silk-



CLEFT PALATE OPERATION.

worm gut, because the latter irritates the tongue. Another surgeon uses the silkworm gut, because it will irritate the tongue, so that the child will keep it away form the flaps. The silkworm gut serves a good purpose. Unless the gut is very fine and pliable, silk should be used in the uvula. I have discussed the treatment of cleft, involving the palate bones. The mattress stitch is just as important when the cleft is only through the soft palate.

The cleft or clefts, through the maxillary bones, require an entirely independent operation. This operation is done at the same time as the palate operation, or soon after. The proper management of the premaxillary bone will help, materially, in closing the space in the palate that could not be closed with the flaps. It is my practice to break this bone loose, if the cleft is wide, and push it back, or downward into apposition with the edge of the maxilla. If the cleft is unilateral and the pre-maxilla cannot be broken and reduced, I cut through the alveolar juncture of the opposite side with bone shears so as to partially free the portion we wish to displace. When the lip is repaired it tends to hold the fragment back so the opening in the palate may entirely close in a year or two.

Before using the mattress suture, it was the exception to have a case hold throughout the entire length of the cleft. We often had to make two and sometimes three operations before we were satisfied with the result. I may have been less skillful than other operators. I do not wish to boast of inefficiency, but state these facts for the sake of comparison. I know that since using the mattress suture, I expect and usually get complete union the first time.

Of the cases treated with the mattress stitch, one was a failure. The patient was a tiny delicate baby, with an exceedingly wide cleft of both palate and lip. Because of the frail appearance of the child I hurried the operation. The haste was unnecessary for, when the work on the palate was completed, the pulse and respiration were about as good as when we began. We then repaired the lip. The child suffered but little from shock.

The mattress suture will not cause the parts to heal unless the balance of the work is properly done.

In one other case, the uvula did not hold. It was this case that led to the suggestion regarding silk sutures in this part of the palate.

All the other cases held throughout the entire length of the cleft.

The Hair.

The hair, being an appendage to the skin, comes within the category of cosmetic therapeutics, and the conditions which, apparently, require the greatest attention, are directed in the extreme opposite; therefore too much, or too little, hair are the two conditions in which the physician is consulted for advice. A luxuriant growth of hair, in the right place, is always regarded as particularly beautiful, but when hair grows in the wrong place, it is considered one of the greatest cosmetic evils, and a "mannish woman" is as greatly disliked by the opposite sex as the "ladylike man." It is, therefore, well to discuss the means of correcting and restoring these defects.

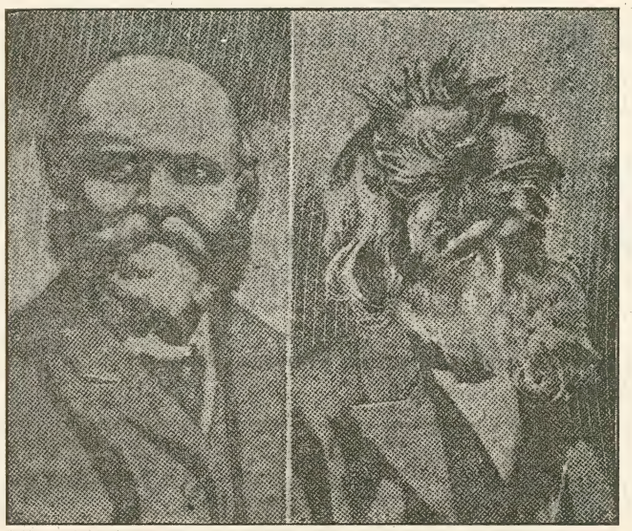
HIRSUTE MONSTROSITIES.

SUPERFLUOUS HAIR.

If we were to accept the theory of evolution, our prehistoric ancestors, perhaps, all possessed a luxuriant growth of hair upon their bodies, but as civilization has advanced, this condition disappeared, evidently, with our simian tail, and now we have only a stubby

coccyx, and a smooth skin, as a result of the evolutionary progress. There are many hirsute monstrosities, however, as is illustrated by the bearded lady, and the little girl, whose body, and part of her arms, were covered with a heavy growth of hair.

Many of us have seen the lion-faced Russian boy, whose entire face was covered with hair, which gave him the appearance of a poodle dog, rather than a man. The most remarkable case, however, was that of Giuseppe Mason, who was, for many years, sexton of a



GIUSEPPE MASON'S CASE.

church in Padua. In 1903, Mason's head become entirely bald, though he did not lose his beard; later, he fell sick with the la grippe, and went to a hospital; while he was convalescing from his illness, a soft down began to grow, not only on his head but upon his face and body. This soft silky hair increased in length and thickness, until he was completely enveloped with hair, as in the accompanying illustration. This case has puzzled scientists more than any ever presented.

REMOVAL OF SUPERFLUOUS HAIR.

We have two ways of destroying superfluous hair; only one of these, however, will give permanent results. All the so-called depilatories on the market depend upon some one of the sulphides for their destructive influence; of these barium, strontium, calcium and sodium are the elements in general use. Of these salts, barium has seemed to be the most popular. I prefer strontium, however, as it is less irritating to the skin.

The stereotyped phraseology of the advertising specialists is to advertise "it is a liquid," and I spent some time and expense, to discover that it was sulphide of sodium they were using, as sodium is the only one of these salts which is soluble in water; it is also more irritating to the skin, but I believe the final results are better than those obtained from the other salts.

Dr. Lutje was the first to call our attention to the fact that better results may be obtained by applying the sulphide of barium, strontium and calcium while hot; by this method, the depilatory is less irritating and more effective.

To prepare such mixture 1.5 grams of strontium or an equivalent quantity of barium or calcium sulphide are triturated with 2 grams of starch and 8 grams of water, and the mixture heated to boiling, with continuous stirring; upon cooling, a creamy mixture is obtained, which is as efficacious as the mixture prepared in the cold, and does not irritate the skin. If this is immediately placed in collapsible tubes, and kept hermetically sealed, it will last indefinitely, and will produce a better article than most preparations found upon the market. This paste should be applied to the surface of the skin containing the hair, and in two or three minutes the hair will be noticed to shrivel up and, apparently, become dissolved. The paste containing the hairs may now be scraped away with the back of a knife, or other blunt instrument; the face thoroughly washed and cold cream applied; this treatment is not intended to permanently destroy the hair, as most of

the hair will return. I believe, however, that a certain percentage is permanently destroyed. This is verified by a series of experiments I have conducted upon my arm.

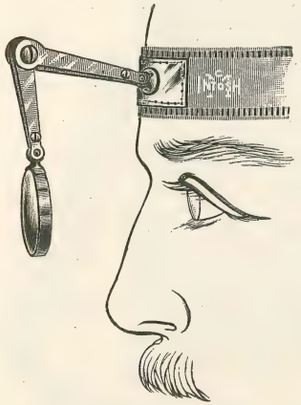
PORTABLE COSMETIC BATTERY AND APPARATUS.

1 Hard Rubber Needle Holder.
6 Hayes' Bulbous Pointed Needles.
2 Steel Broaches.
1 No. 114 Magnifying Glass.
1 pair No. 72 Forceps.
1 No. 3 Hand Spongio Electrode.
1 pair Conducting Cords.
1 pair No. 1 Universal Wood Hnadles.
1 pair No. 1 Spongio Discs.
1 pair No. 40 Metal Handles.
1 No. 30 Wrist Band Electrode.
1 No. 11 Massage Roller.
1 No. 35 Hair Brush Electrode.

ELECTROLYSIS.

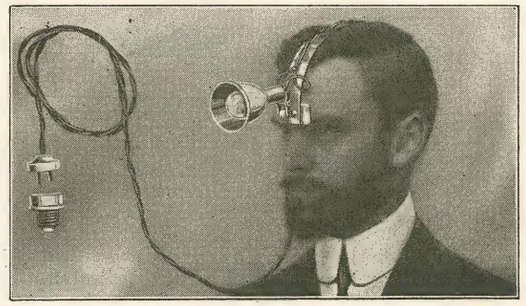
Electrolysis is the only positive and permanent method of removing superfluous hair, and although the galvanic current may be utilized from a public lighting system, I prefer a special fourteen-cell battery, designed for cosmetic purposes, (see illustration), as I believe the current is more agreeable to the patient and of sufficient strength for all cosmetic operations.

Before removing superfluous hair with the electric needle, the surface to be operated upon should be treated with a four to ten percent cocaine solution, by cataphoric application, as is described on a preceding page; using the same electrode as is used for thiosinamine. The operating room should be provided with good light, as these operations are very tiresome to the eye. A magnifying glass, attached to the forehead, as is illustrated here, is also a great convenience, and if this work is done at night, the electric head lamp may be used to a great advantage.



MAGNIFYING GLASS

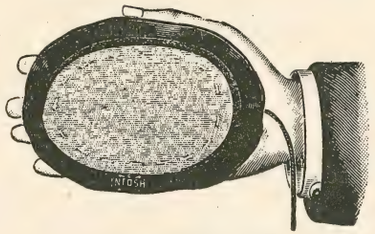
The surface operated upon should be thoroughly cleaned and dried, and the spongio-covered electrode connected to the positive pole, should be placed on one of the hands, previously moistened with water, and if your current is weak, or the patient



ELECTRIC HEAD LIGHT

does not press the electrode firmly, this electrode should be saturated in a salt solution, which gives strength to the current. The needle is attached to the negative

pole, and held by a needle holder. The skin containing the hair is now stretched by the thumb and finger of the operator's left hand, and the needle is inserted in the hair sheath, parallel with the hair, to the papilla; the patient is requested to press firmly upon the positive electrode in her lap. This completes the current, and if the current is strong enough, froth will be observed where it entered the follicle; if this does not occur, the current is not strong enough, and more current should be turned on. Slight traction upon the hair, with the epilation forceps, will determine if the operation has been successful. If the hair is not easily removed it indicates that the operation has not been successful, and the needle should be applied again. It is well not to remove too many hairs in one area, as such



HAND ELECTRODE.

operations have a tendency to leave more cicatricial tissue than those selected from different parts. After completing the operation, which consists of removing from twenty-five to fifty hairs at each sitting, the surface may be covered with oxide of zinc ointment, or cold cream. In a few days, as soon as the skin is devoid of soreness, you may operate again.

FALLING HAIR AND BALDNESS.

Remedies for the treatment of falling hair and baldness, constitute a greater demand than all cosmetic preparations, and nearly every woman has some "favorite" hair grower.

Selecting remedies to promote the growth of hair will depend largely upon the condition we have to deal with, whether the scalp is dry or oily; dandruff and "itching" of the scalp are always preceded by premature falling hair, but without going into details regarding the pathology of falling hair, I will give a typical formulæ for these conditions, and state what we may expect to accomplish from such medications, before attempting to stimulate the growth of hair. The scalp should be thoroughly cleansed with tar soap. I prefer Packer's or an egg shampoo followed by a bath in 1.2000 bichloride of mercury solution. This gives us a clean and aseptic scalp to work upon. Than the following hair tonics may be applied, according to the condition of the scalp.

TONIC FOR DRY SCALP.
Seborrhoea Sissa.

℞ Resorcine . . . . . 3 dr.
Fl. ex. pilocarpus . . . . . 3 dr.
Tinct. cantharides . . . . . 4 dr.
Glycerine . . . . . 4 dr.
Spirit lavender comp. . . . . 4 dr.
Castor oil . . . . . 1 dr.
Bay rum, q. s. . . . . 1 pt.

Mix the castor oil with the bay rum, add the other ingredients, and apply to the scalp with a tooth brush, before retiring. In resuming the therapeutic action of the above formula, we find resorcine is added to nearly all hair tonics for its antiseptic influence. It is closely allied to carbolic acid, but has the advantage over the latter, as it is odorless, more soluble, and non-irritant. Pilocarpus is added for its stimulating influence upon the glands of the scalp, to encourage their normal secretions; tinct. cantharides is incorporated for its counter-irritant effect to stimulate the circulation and activity of the tissues of the scalp. Castor oil provides a temporary lubricant to the scalp and hair, and is the principal constituent of all "brilliantines," as it makes the hair appear rich and glossy. Glycerine has a similar

effect, and is also a mild stimulant to the scalp. The spirits of lavender comp., and bay rum form the menstruum, while this is the most excellent tonic for the dry scalp, we have absolutely another condition to deal with in the oily scalp—seborrhœa oleosa—in this condition the scalp secretes an over-abundance of oily matter, and instead of attempting to stimulate the glandular secretions of the skin, by the use of pilocarpus, our treatment is directed to check them by astringents; thus the formula would be changed as follows:

TONIC FOR OILY SCALP.
Seborrhoea Oleosa.

℞ Resorcine . . . . . 3 dr.
Tinct. Cantharides . . . . . 3 dr.
Lead acetate . . . . . 1 dr.
Sulphur precipitated . . . . . 3 dr.
Glycerine . . . . . 4 dr.
Bay rum, q. s. . . . . 1 pt.

Apply to the scalp with tooth-brush, before retiring. In this formula, we have substituted the lead and sulphur for the pilocarpus, because of their astringent and germicidal influence.

In using either of the above tonics, the hair and scalp should be thoroughly shampooed with a beaten egg, which is followed by a thorough bath with Packer's tar soap.

HAIR DYES.

It is doubtful if the average man or woman has accepted kindly the familiar "golden text" from the bible, "the hoary head is the crown of glory." I am more inclined to believe that the poet has described our attitude towards hoary hair in the following verse:

And thou hast come at last,
Thou baleful issue of the buried years;
Sad fruitage of the past,
Root nurtured in a loam of hopes and fears;
I hail thee, but I hate thee, lurking there
Thou first gray hair!

In order to practice deception upon Father Time, hair dyes have always figured conspicuously with the most ancient and modern cosmetic requisites. There are two ways in which the hair may be caused to change its color or shade: the first is by simple stains, and the second is by chemical action. One of the simplest and most convenient ways of staining the hair a beautiful brown is to use a strong infusion of black tea. in the early stages when the hair is just commencing to turn gray. This offers a most excellent means of maintaining its youthful appearance, and is the method used at most hair establishments in coloring switches to match natural hair. Sage is used for the same purpose, and no doubt enters largely in that much advertised nostrum, "Ozark Herbs." Where stronger stains are required green walnut hulls are used, as in the following:

℞	Green walnut hulls	10 dr.
	Alum	2 dr.
	Resorcine	1 dr.
	Glycerine	2 oz.
	Water, q. s.	1 pt.

Grate the hulls and boil slowly in the pint of water for thirty minutes, strain, and add the other ingredients, and sufficient water to make from ten to sixteen ounces, according to the strength desired. This makes, approximately, the same preparation as the much advertised "Walnuta" hair dye. Before using this, or any of the chemical dyes, it is always best to test the shade you desire by the hair combings, and the hair should always be thoroughly washed with soap and water, containing soda, before using any dye to remove all grease. It is best applied with a tooth brush and fine toothed comb, to protect the scalp, parting the hair in sections at the scalp, and working the dye to the end of the hair.

Hair dyes proper depend upon their chemical action with the organic substance of the hair; thus peroxide of hydrogen in 10 to 20 percent, or stronger solutions,

removes the pigment matter from the hair, and gives it a golden color. A 10 to 20 percent solution of potassium permanganate will give the hair a brown tint. Resorcine will give it the red or "Zaza shade."

PYROGALLIC ACID AND SILVER DYE.

Black and Brown.

These dyes are prepared in two bottles, numbered 1 and 2. After thoroughly washing and drying the hair, No. 1 is applied with a tooth brush, taking care not to wet the scalp, which is protected with a fine toothed comb; when partially dry apply No. 2 in the same manner, using another brush. The following are the two formulas used:

No. 1.

℞	Pyrogallic acid	1 dr.
	Alcohol	4 dr.
	Water dis.	4 oz.

No. 2.

℞	Silver nitrate	1 dr.
	Water distilled	4 dr.
	Ammonia water	q. s.

Dissolve the silver nitrate in the water, and gradually add the ammonia water, stirring constantly until the brown turbidity produced has vanished and the liquid appears colorless. Then add enough distilled water to make one ounce.

A large excess of ammonia tends to produce a brownish dye. Various shades of brown may be obtained by increasing the amount of water in the silver solution. Always remember to thoroughly wash the hair before dyeing it, with water containing sodium carbonate; well rinsed with clear water, and dried, and the dye effect is better if the hair is kept moist as long as possible after being dyed. It may be wrapped in a turban of cloth, or better still, in the rubber bathing cap.

Chiropody

Chiropody bears about the same relation to the medical profession today as dentistry did half a century ago; as it was only a few generations ago that physicians deemed dentistry a minor subject, unworthy of any special attention or surgical skill, other than the extraction of teeth, for the relief of pain; yet dentistry, as a branch of the medical art, has developed into one of the worthy and respected professions. If we would only stop to consider that ills caused from ailments of the feet are quite equal to those of the mouth, as nine people out of every ten are afflicted with some disease or discomfort in this part of their anatomy, we would realize that it is time physicians should give this subject more than a passing notice. Through the neglect of this specialty Chiropody has, unfortunately, fallen into the hands of many unskilled "corn whittlers," who style themselves "Chiropodists." While many of these embryo surgeons possess more than ordinary skill in treating disorders of the feet, the majority of them have little, or no knowledge of antiseptics, and other surgical dressings, and these operations are often followed with the most serious results.

I, personally, have no use for the physician who considers it beneath his dignity to treat the feet, or any other part of the body, if he possesses skill to relieve pain, and alleviate suffering. Chiropody certainly offers him a large field for his usefulness.

However trivial the maladies of the feet may appear, and however they may be sneered at, and considered beneath the dignity of medical science, they nevertheless, demand careful attention; the physician will be amply repaid for his services, or for any information he may contribute to the ease and comfort of mankind.

THT CAUSE OF CORNS.

In treating corns, as a rule, we have only the four outer layers of the skin to deal with, (the epidermis); the true skin is seldom affected, unless it is involved in the sloughing process of suppuration. Corns and callosities appearing upon the feet are caused either by pressure or friction, usually due to the improper selection of footwear. There are two forms of shoes which should be condemned—the high heels and narrow toes. The erroneous idea many women possess, of trying to ape the aristocratic Chinese women, by attempting to make their feet appear small, from the use of these shoes, has offered more labor for the chiropodist than any other cause. These shoes force the feet forward, compelling pressure between the toes, to a state of friction, and produce corns, both between the toes, and upon the top surface of the prominent articulation; while tight, narrow-toed shoes induce corns by pressure. Too loose, and poorly fitting shoes, produce corns and callous hardening by irritation. This is the principal cause of all callosities on the heel and bottom surface of the foot.

There has been much said regarding the pathological formation of corns. Most observers are in accord, however, that the pressure on prominent articular surfaces causes an exudation of lymph which coagulates under the epidermis, and through its inspissations, forms the substances of corns. Corns seldom involve the true skin, but their penetration into the cutis vera, and the pressure upon the nerve filaments of the papillæ, cause the annoying pain connected with these growths. Sir Erasmus Wilson says:

"The new position of the formative organ of the epidermis, namely, the corneum, occasions an alteration in the direction of the strata of the epidermis. The strata formed within the cup assumes, naturally, the cup shape, and as they rise to the surface, present the

broken edges of a cup, with a small central mass or nucleus, (the eye of the corn), suggesting the idea of vertical fibres rising to the surface, and the suggestion is increased by the broken edge of the epidermis that corresponds with the border of the cup. The fibrous appearance of the center of the clevice has suggested the idea of roots, and the central cup-formed mass of hard and condensed cuticle has been regarded as the core or root of the corn.

The use of the word root in the description of corns has implanted the idea that they grow like a vegetable, and in order to eradicate the diculty, this filament must be destroyed; this is an erroneous conception, which has often led to great disappointment to the sufferer. Corns have no roots, and are only embedded in the sensitive structures of the true skin; they will always reappear if their primary cause is not removed, namely, pressure or friction.

CLASSIFICATION OF CORNS.

Although most corns are similar in structure, they present varieties, according to the parts upon which they are formed, or the tissue which becomes involved. We, therefore, find seven distinct varieties of these growths, namely: hard, soft, festered, nervo-vascular, laminated and fibrous corns, and callosities of these. The hard corns are of the most frequent occurrence. A favorite seat for these corns is on the outer surface of the little toe, and the inner flap of the great toe, although they may occur on any part of the foot where extreme pressure is applied. These corns are deep-seated and very painful.

Soft Corns are somewhat different in nature from hard corns, and are always located between the toes, and are supposed to be formed by the perspiration collecting between the toes, and the pressure of one toe against the joint of another. They are not deep seated, or as painful as hard corns, the pain being of a stinging character.

Festered Corns are due to pressure, forcing the toes out of their natural position, which frequently occurs in "breaking in" a new pair of shoes. The first indication of this complaint is redness, swelling and inflammation of the afflicted part, which may involve the entire toe. These corns can only be relieved and cured by properly adjusting the footwear, to remove the pressure from the affected surface.

Nervo-Vascular Corns are generally found in delicately skinned persons, with fair complexion; their skin being more vesicular than usual, disposes to inflammatory action, even after moderate pressure. These corns are also more frequently found in persons advanced in life, with weak vitality. In the early stages

French Heel Cramp. Hard and Soft Corns. "Knob-Joint" Compound Callouses.

they are intensely inflamed; this irritation subsides in a few days, if the pressure from the shoe is avoided. After the acute inflammation has subsided the corns can be carefully dissected away, and an application of nitrate of silver applied.

Vascular Corns have somewhat the appearance and character of warts; they are spongy and vascular, but do not project much beyond the level of the skin. They contain red and black specks, which are surrounded by inflamed and swollen integument; they are very sensitive to the touch and attended with great pain.

LAMINATED CORNS, also frequently referred to as black corns, are due to the formation of a blood cloth, or coagulated serum underneath the epidermis. These corns adhere very closely to the skin, and are, invariably formed like a shell.

FIBROUS CORNS are more painful than the other varieties, but fortunately, they are less frequently met with, and their method of removal is the same as with the other varities.

CALLOSITIES are not of the character of a corn, as there is no change in the integument, other than a thickening of the skin. This may appear on the hands, by sawing, or any other part of the body which is exposed to continuous friction. It is formed on the soles of the feet by the use to too loose shoes. These callosites rarely cause any trouble. If they should become inflamed, they can be removed by dissecting, the same as corns.

THE TREATMENT OF CORNS.

The treatment for corns consists of both medical and surgical measures. The first, and most important step to take, is prophylaxis—remove the cause. If the patient is wearing too tight, or too loose shoes, he should be advised regarding the proper adjustment of footwear. High heeled and pointed toed shoes should always be condemned; also a too loosely fitting shoe.

A description of the caustic remedies, used from time to time, for the removal of corns, would occupy the space of this book. Some have been too mild, and others too strong, but after years of experience, it has become an established fact that salicylic acid is the one remedy for the removal of corns. Salicylic acid is the happy medium; it is neither too strong nor too mild. Its escharotic properties are strong enough to disintegrate the corn tissue, imbedded in the epidermis, without affecting the true skin. All the multitudinous corn cures on the market contain this remedy, in various per cents, as the active ingredient of their preparations. The component compounds are generally accompanied by Cannabis Indica, or some other anodyne remedy, for the relief of pain, and dispensed in a base of collodion or cerate, as will be found in the following formula:

LIEBIG'S CORN CURE.

℞ Ext. Cannabis Indica . . . . . 5 parts.
Salicylic acid . . . . . 30 parts.
Collodion . . . . . 240 parts.

Mix until dissolved. Apply with a camel's hair brush, for consecutive nights and mornings, to form a thick coating. The collodion protects the corn from irritation and rubbing, while the extract of Cannabis Indica acts as an anodyne, and the salicylic acid dissolves and disintegrates the corn.

HANSON'S MAGIC CORN CURE.

℞ Salicylic acid . . . . . 1 dr.
Simple cerate . . . . . 1 oz.
Mix intimately.

KOHLER'S ONE NIGHT CORN CURE.

℞ Salicylic acid . . . . . 1 dr.
Lard . . . . . 3 dr.

DIAMOND CORN PLASTERS.

One of the most convenient, and cleverly devised, treatments is known as the "Diamond Corn Plasters," which are made as follows: An adhesive plaster is made by melting equal parts of resin and balsam of fir together; while warm, spread on cambric cloth, cut in diamond shape. When worn, a circular pad, with a disc in the center, should be placed in the middle of the diamond, and the central disc filled with the following mixture:

℞ Ext. Cannabis Indica . . . . . 1 dr.
Resin . . . . . 3 dr.
Balsam of fir . . . . . 2½ dr.
Salicylic acid . . . . . 5 dr.

Melt the resin and balsam of fir together, then stir in the Cannabis Indica and salicylic acid.

In applying these plasters, the central medicated disc should be placed directly over the corn, and the pointed ends of the adhesive plaster wound around the toe, to form the attachment.

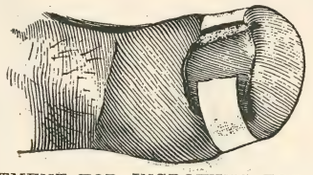
The surgical treatment of corns is of great importance, as instant relief can be obtained by their immediate removal, with the knife. To successfully detach a corn, the operator has to exercise some judgment concerning the different forms of corns. The principal object in view is to remove all the corn tissue.

In dissecting away a corn or callosity, the operator should commence at the edge of the corn, and detach from the subjacent tissue every portion of the extraneous substances there inbedded, including the, so-called, eye of the corn. Great caution should be exercised not to cut into the true skin, as this will produce bleeding, which can be avoided if the operator is careful. If the corn is an exceptionally sensitive growth, a few drops of cocaine solution can be injected beneath the corn, and the operation rendered painless. After the corn has been successfully removed, the denuded surface should be dusted with aristol europhen, or some other antiseptic powder, over which a thin layer of absorbent cotton is placed, and held in position with adhesive plaster, which will diffuse the pressure of the foot, and assist the healing process. Some chiropodists prefer to cauterize the surface with nitrate of silver, with a view of permanently destroying the growth.

BUNIONS are due to a malformation of the foot, which is usually limited to a morbid condition of the internal lateral ligament of the metatarso-phalangeal articulation of the great toe, of the superimposed cellular tissue and integument, and the development of a bursa produced by pressure and irritation. When the bone has become affected, it is only secondarily, and must be viewed as a complication, and not as a disease. The pain arising from a bunion differs from a corn, as it is of a more aching character. Although a radical

cure for bunions can seldom be promised, there are many palliative treatments, which can be applied, and relief from suffering inconvenience is afforded by proper treatment. The most beneficial local remedies are cold water dressings, and linseed meal and boracic lint poultices. If the bursa becomes too annoying, it may be dissected away, but such operations always result in ankelosis.

INGROWN TOE NAIL is of very frequent occurrence, and is usually found upon the outside surface of the great toe. This condition is due to wearing shoes which are not long enough for the feet, or the foot is thrown forward, as with high heeled shoes, impinging the great toe.



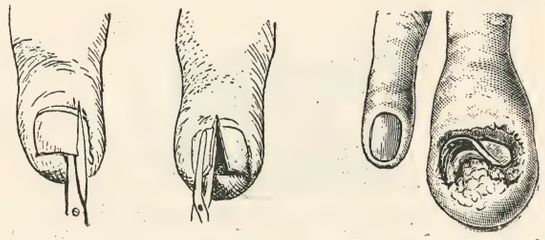
TREATMENT FOR INGROWING TOE NAIL.

The following method of medicated treatment is the most satisfactory, and will cure at least ninty per cent of all cases: The flesh should be pulled away from the nail, at the irritating side, by a strip of adhesive plaster, which is wrapped around the toe, to draw the cutaneous border away from the nail. The irritating surface should now be thoroughly cleansed with peroxide of hydrogen. The exposed fissure should be packed with a copious application of dried alum, and thoroughly packed in with an absorbent cotton tampion, over which the second strip of adhesive plaster may be wrapped entirely around the toe. The accompanying cut illustrates the method of packing and applying the tension strip, which is now ready for the final strip around the toe.

This simple method, if properly conducted, will give most excellent results; by repeating this application for

a few days the suppuration rapidly dries up, and pain and discomfort are relieved almost at once.

The surgical treatment consists of complete removal of that portion of the nail imbedded in the flesh. The operation can be made painless by the use of an injection of cocaine alongside the parts to be operated upon, and the Esmarch hæmostatic bandage should be applied above the operative surface, to check the flow of blood. With a pair of sharp pointed scissors the nail is cut its full length; the offending portion should then be grasped with a strong pair of dressing forceps, and with a slight twist outwards, removed from the matrix, and an antiseptic dressing applied.



1 and 2, Operation for ingrown toe nail. 3, Onychis.

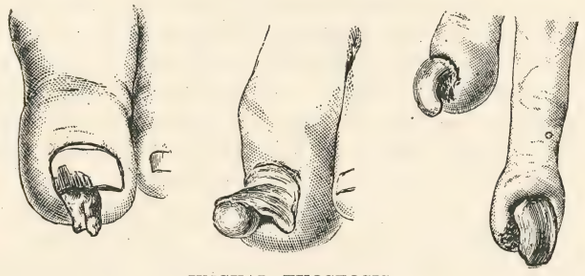
HORNY GROWTHS, AND UNGUAL EXOSTOSIS.

Sometimes appear at the outer margin of the great toe, and create great suffering; the only method of treatment is complete excision, and an antiseptic dressing.

ONYCHIS is an inflammation of the matrix of the nail, causing ulceration of the surrounding tissues, and may be caused either by injury or constitutional disturbances. The simpler forms commence with the usual signs of inflammation around the nail, which becomes red, painful and swollen. Mild cases can be cured by cauterizing the parts with nitrate of silver, or other caustics. Other cases will require the complete removal of the nail by the use of the knife, allowing the wound to heal by granulation.

HYPERSIDROSIS, or excessive sweating, is a very annoying condition, which Chiropodists are requested to treat. Patients thus afflicted should wash their feet and change their stockings daily, and provide good ventilation in their shoes. The inside of their stockings should be dusted with boracic acid, and the application of the following formula, each night before retiring, will be found beneficial:

℞ Tannic acid . . . . . 3 dr.
Alcohol . . . . . 6 dr.



UNGUAL EXOSTOSIS.

BROMIDRASIS, or obnoxious smelling feet, is not of uncommon occurrence, and many husbands and wives have been requested to sleep alone, owing to the odor emanating from this condition. The following formula will always give prompt relief:

℞ Bismuth subnitrate . . . . . 1 oz.
Potass. permanganate . . . . . 1½ ozs.
Rice powder . . . . . 2 oz.

Sprinkle liberally on the feet, and in the stockings and shoes. This application can also be applied to the axillæ, and other parts of the body, for the same condition.

CHILBLAIN is a local non-suppurative hyperæmia, or cellulo dermatitis, induced by exposure to cold, and can readily be cured by the use of equal parts of Peruvian bark and castor oil.

Gynaecology

Non-Surgical.

Of all the diseases which have offered the office specialists a fertile field, the ailments peculiar to women perhaps head the list; and there are very few women who pass through the span of life without requiring the services of the physician at some period, for the treatment of diseases peculiar to her sex, and the prevalence of these conditions are, apparently, increasing to an appalling extent. Visit any hospital or sanitarium in the country and you will find at least twenty-five per cent of the patients are gynæcological cases.

When God created woman from the rib of man, he evidently intended she would be his masterpiece, an improvement to man, or man modified and perfected, yet, in his last crowning handiwork, he has rendered her doubly susceptible to a class of diseases and injurious influences, from which the other sex is entirely exempt; therefore, from puberty to the menopause may be considered the critical period of her life. During these thirty or more years the functional derangements, physiological changes, and pathological conditions constitute the greatest number of any classified diseases the physician is called upon to treat.

Surgery, of later years, has entered into gynæcological practice to such an enormous extent that nowadays it is, apparently, a fashion, other than a necessity. Out of idle curiosity I recently requested a fashionable club lady to "invoice" the members of her club, to ascertain the percentage who had undergone an operation; her report was, that of the eighteen members present, fifteen had been surgically treated for the diseases peculiar to their sex; of these, seven were laparotomies. She also stated that "this proved to be surgical day at the club," all discussing their ailments and operations, and the remaining three, (who were not victims of the knife), were apparently jealous because they had not experienced the pleasure (?) of a surgical operation. This is a fair illustration of the extent of gynæcological surgery in our cities. In the country this practice is not carried on to such an extent.

I do not wish to be understood as condemning conservative surgical measures, for there is no class of ailments in which surgery has served a more noble purpose than in the diseases of women, but these special diseases have also offered such an inviting field to the "surgical grafter," that many highly respected Gynæcologists have created a breach in moral and medical ethics by advising surgery for the sole purpose of attempting to establish their reputations as surgeons, and fatten their purse.

These operations have not only been confined to ovariotomies for the prevention of conception, but in a large class of diseases, in which non-surgical means would have produced better results. I will, therefore, discuss some of the therapeutic measures which have rendered me indispensable service in the non-surgical treatment of the diseases of women.

CLASSIFICATION OF TREATMENTS.

The non-surgical treatment of the diseases of women incorporates every means other than the knife; we therefore, have all the physiologic methods discussed in the preceding pages, combined with the medicinal measures at our command. These may be divided into internal medications, or medicines taken by the mouth. Extra-uterine medication, or medicines used by absorption by applications to the vaginal canal, at the mouth of the uterus, etc., intra-uterine medication by application to the uterine canal and cavity.

These three methods of medication, either used singly or combined, incorporate the means generally used by physicians for alleviating suffering and curing

the diseases peculiar to women. It is, therefore, well to have a correct understanding of these therapeutic measures.

INTERNAL MEDICATION.

Of the remedies which interest us the most, for the internal medications for the diseases of women, come under the classification of uterine tonics, alteratives and analgesics. It is beyond the scope of this book to discuss in detail all the remedies offered in this class. I will, therefore, give only two formulas, which are dispensed in tablet form, that have been of much service to me, and will be referred to later.

UTERINE TONIC.

Each tablet contains—

Ext. Viburnum prun.	1 gr.
Ext. Viburnum opul.	1 gr.
Ext. Star grass	½ gr.
Ext. Squaw vine	½ gr.
Ext. Helonias	½ gr.
Caulophyllin	¼ gr.

Directions—A tablet four or more times a day ,as required.

UTERINE TONIC—SEDATIVE AND ALTERATIVE.

An exceptionally efficient combination in Dysmenorrhœa, Ovarian neuralgia, Uterine congestion, and all painful conditions of the pelvic organs, associated with anæmia and constipation.

Blaud's Mass	1 gr.
Ex. Black Haw	1 gr.
Ex. Blk. Cohosh	1 gr.
Ex. Hydrastis	½ gr.
Euonymin	½ gr.
Apiol	½ gr.
Ex. Gelsemium	¼ gr.
Strych. Sulph.	1/120 gr.
Aloin	1/10 gr.

One or two tablets, three times a day.

VAGINAL DOUCH THERAPY.

That the external bath was succeeded at a very early period by the internal bath or douch, through the principal orifices of the body, the rectum and the vagina, is authenticated by one of the ablest early historical writers on bathing—Dr. John Bell—who states that women of the orient devised apparatus of dried skins, and bladders of animals, with crude wood or bone nozzles, by the use of which they could take the vaginal douch. There was no improvement upon devices for the vaginal douch, until the utilization of rubber in commerce. Since the introduction of rubber, there have been many styles of douch syringes; the old style double tube, hand ball syringe, was the first to become popular. This was followed by the fountain syringe; both are deficient in their purpose, when we consider the anatomical construction of the parts, and the therapeutic uses of the vaginal douch. In conducting the vaginal douch for therapeutic purposes, there are many things to be considered. The first and most important, is a properly constructed douch syringe; the second, is the technique of the douch to accomplish its greatest therapeutic results; third, the use of the vaginal douch as a sanitary, hygienic and prophylactic measure; fourth ,its utilization as a curative and restorative means in the treatment of many diseases peculiar to women.

In selecting a syringe to accomplish the best results from vaginal douch therapy, there are many essential things to remember. The first, and principal object of the vaginal douch is cleanliness; to accomplish this, the syringe should be so constructed as to wash out and not in. This brings us to the point of considering the anatomical construction of the vaginal walls, the lining membranes of which are arranged in transverse folds and pockets, instead of longitudinal, as is generally believed by those who are not familiar with the minute anatomy. It is these transverse folds and pockets which naturally detain the escape of effete matter;

to thoroughly eliminate these accumulating impurities requires a douch current, which will be ejected from the syringe in a transverse rotary, or whirling movement. The pouch which surrounds the cervix, known as the cul-de-sac, is also another favorite seat in which accumulation of effete matter accomplishes its destructice influence in breeding pathological conditions, and the only way to reach this part of the female generative tract is by distending the walls. Another very important thing to be considered in the mechanical construction of a douch syringe is its ability to maintain hot, cold or medicated solutions against the expanded walls of the vagina for a definite length of time; as all solutions are absorbed and receive their greatest therapeutic influence more rapidly with the walls expanded than they will while in a relaxed state. It will thus be seen that the only way to properly conduct a vaginal douch will depend upon three principal things, namely: Complete dilatation of the vaginal walls, a transverse rotary movement of the douch current, to dislodge and remove any and all destructive elements, and to retain the expansion of the vaginal walls long enough to allow the hot, cold or medicated solution to have a prolonged influence, if desired. While the double tube ball syringe has fallen into the relics of antiquity, the fountain syringe is fast following in its wake, as the only results accomplished by either of these syringes is a superficial flushing, which is sure to leave remnants of impurities, with their contaminative influence.

There is one syringe offered the medical profession, which can be unhesitatingly endorsed and recommended, as fulfilling all the requirements mentioned above. This is known as the "Irrigating Syringe." This syringe is so constructed, by a special device at the tip, that the douch current will be ejected in a rotary movement, which will immediately dislodge and remove all effete matter from the walls and transverse folds of the vaginal canal, from the cul-de-sac to the labio-vaginal orifice. At the base of the nozzle is a

soft rubber adjustable shield, which anatomically conforms to the parts, without injuring their delicate and sensitive structure. This shield prevents the escape of water, and allows the syringe to be used in either the recumbent, sitting or standing position, as may be required at times, without soiling the clothing. This device also allows complete expansion of the vaginal walls, and the prolonged effect of the douch solution, when desired. The bulb, which is also the container for the douch solution, has a capacity of nine fluid ounces, and, although smaller in volume than the fountain syringe, the douch solution accomplishes greater results, as it covers every particle of space within the vaginal cavity, which would be impossible to do with a four-gallon solution and the ordinary nozzle of a fountain syringe, that has to be continually moved from place to place, being likewise inconvenient, deficient and ineffective in its purpose and results. While the use of the fountain syringe generally requires the sitting position and a receptacle, this syringe may be used in any position, as the douch solution is drawn back into the rubber bulb by simply releasing the pressure upon the bulb. This syringe is also so constructed that it may be easily taken apart and rendered antiseptic, at all times, with little or no inconvenience; in fact it is the only ideal and scientifically constructed syringe, in present use, which is based upon the anatomical conformation of the parts to conduct the technique of the vaginal douch. Our attention is now called to what conditions, class of ailments or pathological changes can "Vaginal Douch Therapy" be utilized to its greatest advantage. The first requisite is personal cleanliness; it was John Wesley who said, "Cleanliness is indeed next to Godliness," and in no part of the female organism is the axiom of truth from this great divine better exemplified than in the use of the vaginal douch, as a hygienic and prophylactic principle; for the propagation of weakness and disease often have their origin in the neglect of cleanliness of the vaginal canal, and

the cause of the prevalence of ill-health, among many women, may be traced directly or indirectly to a deficiency in knowledge of the value of the vaginal douch. It is the general belief among many women that the vaginal douch is only necessary in diseased conditions; this is a great mistake, as the vaginal douch is the one principal means in our possession of obtaining and maintaining health to this generative tract, and requires the same precaution toward cleanliness, only in a greater degree, than any part of her body, for at this age, the internal, as well as the external bath, will bear fruit in the health of the future generation. I feel justified in stating that fully fifty per cent of the weaknesses and diseases peculiar to women could have been obviated by the timely use of the vaginal douch. To comprehend the value of the vaginal douch in the treatment of diseases peculiar to women, we must know the value of tepid, hot, cold and medicated douch solutions; also their therapeutic relation and value in the different pathological conditions.

In considering the thermic influence of douch solutions we must always bear in mind that cold contracts the blood vessels, and retards the circulatory functions, while heat increases the circulation by dilating the blood vessels, and increasing the progress of blood currents. We, therefore, find that the cold douch has such a limited field of usefulness that it is hardly worthy of mention; this is also true of the tepid douch, as there is no reaction, and neutral results are only expected for cleanliness; therefore, the hot, prolonged vaginal douch, and the medicated vaginal douch, are of the greatest value.

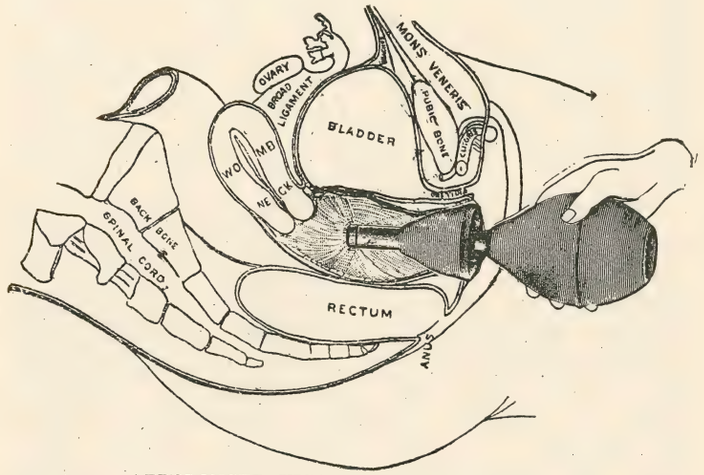
THE TECHNIQUE OF VAGINAL DOUCH THERAPY.

This will depend upon the functional or pathological condition we have to contend with, and whether we wish the douch for its immediate effects, as for cleanliness, or the prolonged effect for its thermic influence, or the extra-uterine medication. Should we wish the douch for an immediate flushing for cleanliness, the standing or sitting position may be preferred by many, as the vaginal canal in this position is at an angle of about forty-five degrees, with the apex pointing upwards, and the gravity of the douch solution would naturally fall downward with greater force upon withdrawing the syringe, and be more thorough in its purpose. If we wish a prolonged or medicated douch, the recumbent position is preferable, as the vaginal canal in this position is placed at an angle of forty-five degrees, with the apex downward, and the gravity of the water, together with the force from the pressure upon the bulb, and the prevention of the escape of the douch solution, by the protective labial shield will allow the thermic or medicated solution to remain for an indefinite length of time, which is one of the many advantages of the irrigating syringe.

In order that we may logically comprehend the value of vaginal douch therapy, we must understand the technique of the different methods of applying the douch, and its therapeutic relation to disease. Undoubtedly the most valuable douch in vaginal therapy is often referred to as the "prolonged vaginal thermic bath"; this douch was made popular at Luxeuill, France, by a special apparatus whereby 20 to 25 gallons of water was used to maintain its thermic influence. The same effect can be produced by nine ounces of douch solution with this syringe.

To obtain the full benefit of this bath the patient should be placed in the recumbent position, with the legs drawn up, and the hips elevated; the bulb of the syringe, previously filled with the douch solution, at a temperature of 110 to 113 degrees F; the nozzle is inserted into the vagina until the protective rubber shield is adjusted firmly against the labio-vaginal orifice, to prevent the escape of the solution; pressure is now made, gently, upon the bulb, until the vagina is distended to its full capacity; the bulb is now relaxed, and the solution is withdrawn back into the syringe. The

operation should be repeated several times, as the dilation and relaxation of the vaginal walls have a very stimulating effect. Fresh douch solutions may be used each time if desired, although it is not necessary. This is the treatment, par excellence, for many forms of pelvic affections. It will relieve pain in this cavity, as a rule, almost instantly; any form of congestion and inflammation are greatly benefited, as it increases the activity of the circulation, and removes the inflammatory exudates. Its therapeutic influence is fully one



PROLONGED VIGANAL THERMIC BATH.

hundred percent. greater than hot fomentations, and the use of the water bottle, to the external surface, as the vaginal douch brings the thermic effect in more direct contact with the disease, and will penetrate the mucous membrane of the vagina more rapidly than it will the integument, and muscular layers of the external abdominal walls.

Space will not allow me to give the technique of the value of this douch in all the different pathological conditions within the female pelvis, but in emphasizing its therapeutic value will say that pain, inflammation or

congestion from any disease within the pelvis is greatly benefited by its use; this applies not only to the surface in which the douch solutions come in contact, but the penetration of heat will reach the deeper structures, as it will by no other means, and will be found useful as a therapeutic application in metritis, localized salpingitis, ovaritis, cystitis, pelvic peritonitis, diffuse lymphangitis, without much swelling, etc. While these douches may not be the principal therapeutic curative process, they are especially valuable in preparing the way for other treatment. What is true in pathological conditions is equally true in functional disorders; its influence in curing amenorrhœa and dysmenorrhœa is almost specific at times, while leucorrhœa is only a symptom of other diseases; it abates the discharge by restoring health to the primary cause; this is also true in menorrahage, metorragia, etc. In all cases there is a palliation of symptoms, and douches of this character may eliminate the presence of exudates and tumefactions of the adnexa, especially when used in conjunction with extra uterine and intra-uterine medications.

EXTRA-UTERINE MEDICATION.

It is this method of treatment which is most universally used by all physicians, and consists of any and all medications applied within the vaginal walls, which are utilized in the form of medicated douches, tampons and suppositories. The suppository medication is, by all means, superior to any other form of extra-uterine treatment, as it has the following advantages: it may be used by the patient in the privacy of her home; it allows complete and continuous medication while the organs are at rest, during the sleeping hours, (as the best time to use this medication is before retiring), and also allows direct medication to the diseased parts, in many conditions, and its absorption reacts to a therapeutic advantage in the more remote diseases. We, therefore, find that with this form of treatment, we are able to reach the diseased conditions of all organs

within the female pelvis. There are many medicines which have entered in this method of treatment, from time to time, but my experience, in the continuous use of the following medications, in their former and present modified form, has convinced me that it is superior to any other combination of medicinal agents, as a universal extra-uterine application.

℞	Elaterium	1-6 gr.
	Powd. Jequirity	¼ gr.
	S. E. Belladonna	½ gr.
	S. E. Hyoscyamus	½ gr.
	S. E. Hamamelis	1 gr.
	S. E. Calendula	1 gr.
	S. E. Thuja	1 gr.
	Quinine and Urea hydrochloride	½ gr.
	Resorcine	2 gr.
	Zinc Sulphate	2 gr.
	Boric acid	4 gr.

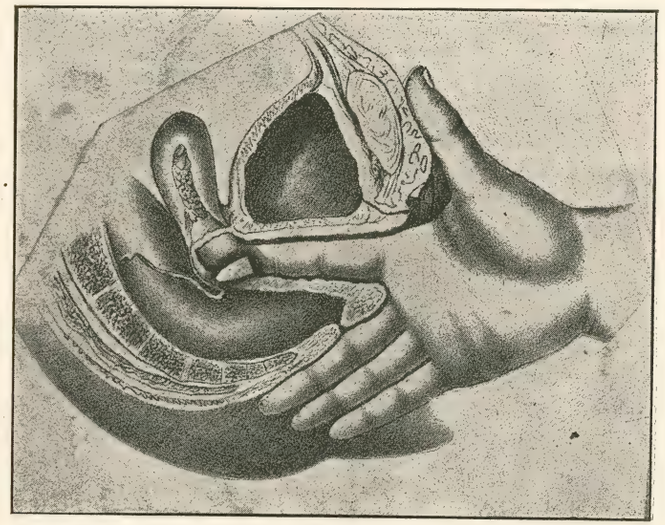
I have the above medications prepared in two forms: No. 1, in a base of cocoa-butter and slippery elm, and No. 2, in tablet form, resembling in shape the ordinary suppository. The former is used where quick action is required, as in dysmenorrhœa, frequent and painful urination, the pain of cancer, etc. The latter is used where slow continuous medication may be required.

In reviewing the above formula, one would naturally ask: why are so many remedies incorporated in a single suppository? I can only say that each has been added, from time to time, with a decided improvement, and as a general extra-uterine application, it would seem almost impossible to dispense with any one of them. We will, therefore, resume the therapeutic value of each remedy, and point out its specific purpose.

Elaterium has long been recognized as one of the most efficient remedies we possess in extracting serum from the intestinal tract, and producing profuse watery discharges for the relief of ascites, anasarca, uremia and cerebral disorders. It has likewise been found to extract serum from the pelvic cavity, when in constant

contact with the mucous membrane of the vagina, and accomplish the same results as glycerine tampons, used by nearly all physicians for the purpose of extracting serum, and thus relieving congestion and all inflammatory exudations. In fact, it is the pelvic antiphlogistic, "it bleeds, but saves the blood," and is a most valuable remedy in all inflammatory conditions, whether acute or chronic.

Jequirity is a counter-irritant. The temporary effect is to create a mild inflammation, which subsides



METHOD OF APPLYING EXTRA-UTERINE APPLICATION.

and eliminates old inflammatory processes. This is generally controlled by the other remedies in this formula. The local use of belladonna is well understood by all physicians, as an antispasmodic and anodyne, and as a remedy to relieve pain, particularly of the pelvic organs. Hyoscyamus is added for its anodyne effect. Hamamelis has a special influence over the veinous circulation, promotes the healing of erosions, ulcers, etc., and checks foul discharges, leucorrhœa and

gonorrhœa. Thuja and calendula are also added to reinforce this influence. Quinine and urea hydrochloride has made a wonderful improvement in the original formula, as by the use of this remedy, we have a most valuable and prolonged obtundent, and when this is applied at the mouth of the womb, it will not only deaden the pain, which may be caused from dysmenorrhœa or cancer, but placed between two other important organs the rectum and bladder, will give immediate relief to any irritating influence which may exist, while other therapeutic measures are being carried out for their permanent results. It is, therefore, of great value in relieving the pain from hemorrhoids, frequent and painful urination, as a result of an irritable bladder. I have, also, added resorcine to this improved formula, as we derive all the benefit of carbolic acid in its non-irritating form; the zinc sulphate is utilized for its astringent properties and boric acid for its antiseptic influence.

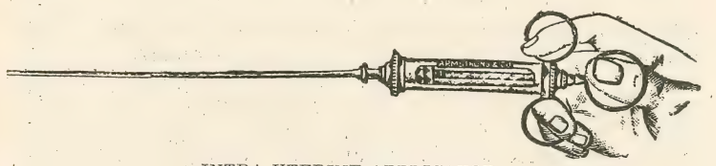
This formula may have the appearance of a "shot gun prescription," but it will hit the target, at rifle range, so often, that it has become one of my strongest armorments in fighting many pelvic diseases; as morphine has the widest range of usefulness in general medicine, this covers the broadest area in pelvic disorders. By the application of this suppository we suppress all pain and distress within the pelvis, nearly as rapidly as with a hypodermic injection of morphine, and while we are receiving this temporary relief, we are removing inflammatory exudations, healing erosions and ulcerations, decreasing corrosive and purulent discharge, and permanently restoring these organs to their normal condition.

The diseases in which this medication will be found valuable will be described under their respective classifications.

INTRA-UTERINE MEDICATIONS.

It is this form of uterine medication which has been commended and condemned more than any other means of gynæcological therapeutics; although this offers us

a valuable means of uterine treatment, it is not devoid of danger, when injudiciously used. The principal reason many physicians have failed to be successful with this treatment is not the quality of medicine used, but the quantity. They do not stop to realize that the normal unimpregnated uterus, when extended to its full capacity, will only contain about ten or twelve minims, as graduated on the piston stem of a syringe, and any amount of medicine used, above this quantity, is either forced into the fallopian tubes, or perhaps through them, into the peritoneal cavity, where the most grave results may occur. This is the one principal thing which should always be remembered, and avoided, in all intra-uterine medications, as it is this state of



INTRA-UTERINE APPLICATOR.

affairs which has made many physicians ignorantly condemn the method. Another very important thing to be considered is to have your instruments, and cervical canal aseptic, before entering the uterus proper, as any infection which may enter this cavity is sure to rapidly multiply, until the entire walls, including the fallopian tubes, and perhaps the peritoneum, will be involved; therefore, always be on the safe side, and avoid these unpleasant and grave obstacles; never inject over eight or ten minims, as is regulated by the graduate on the piston stem.

In order to conduct intra-uterine medications successfully, it is necessary to have a suitable instrument. I prefer Baun's applicator, (or the one illustrated here), as this gives you full access to the uterine cavity, and control of your medication. I can only condemn the glass pipett, which resembles the ordinary medicine

dropper, as with this instrument you never have control of your medicine, and almost always inject air into the cavity, producing "uterine colic."

MEDICATIONS FOR INTRA-UTERINE TREATMENTS.

Intra-uterine medication is divided into two sections: the cervical canal, and the cavity of the organ; treatment to the canal is by far in the greatest demand. Cocaine may be injected for anæsthetic purposes, in sensitive patients, to dilate the internal os; previous to dilation of the same, hemostatics and astringents may be used, where there is persistent and dangerous hemorrhage.

Menorrhagia and metorrhagia, dependent upon simple chronic congestion, and hyperplasia of the endometrium, are successfully treated by these medications. Gonorrhœa, and other septic infections, extending to the uterine cavity, may also be successfully treated by direct application of appropriate medication to the affected area; thus we find inflammation, congestion, infection and excessive hemorrhage the principal indications for intra-uterine medication. There are many remedies employed for this. Ichthyol alone, or in combination with other remedies, is one of the best medications; it is not a caustic, but its action upon the tissues will contract the blood vessels, and reduce inflammation or congestion, and also has a soothing analgesic effect. Protargol is another valuable non-irritant astringent and antiseptic. Phenol iodatum, which consists of iodine 20 parts, glycerine 20 parts, and phenol 80 parts, is also an excellent medication. These remedies either used singly, or in combination, constitute the greatest part of the medication used in office treatments. I use these in combination, in the following formula, which I refer to as:

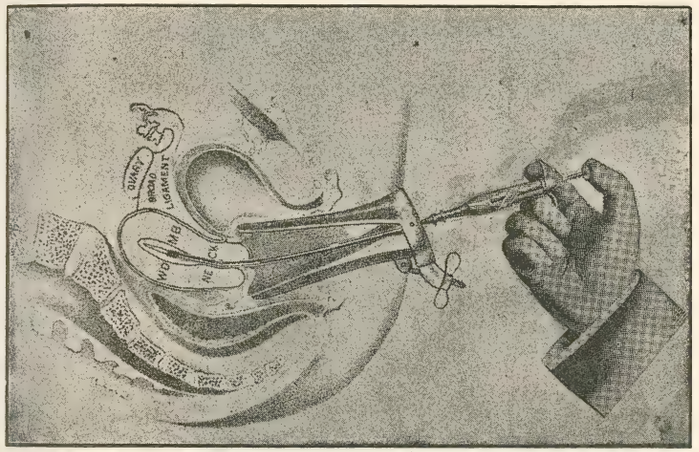
INTRA-UTERINE APPLICATION.

℞ Protargol sat, sul. ... ... 2 dr.
Phenol Iodatum . . . . . 2 dr.
Ichthyol . . . . . 4 dr.

The above makes an indispensable preparation, as it has such a universal field of usefulness.

TECHNIQUE OF INTRA-UTERINE MEDICATION.

With the patient in the dorsal position, the speculum is introduced, and the cervix is exposed and cleansed with an antiseptic solution, by the use of the dressing forceps. In commencing Intra-uterine medication, I always begin with the minimum quantity, to



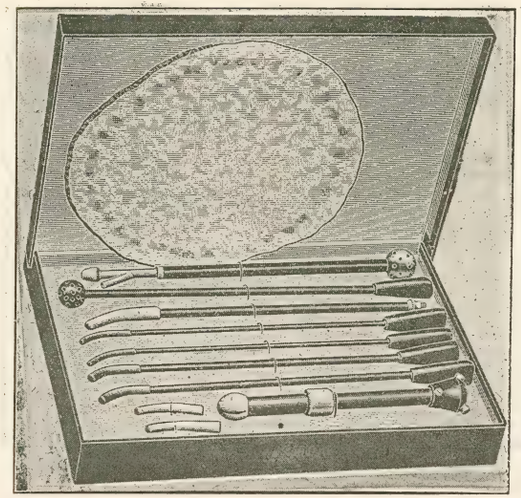
METHOD OF APPLYING INTRA-UTERINE APPLICATION.

see if it will be tolerated by the patient. Many women are very susceptible to this treatment, and it seems that any form of treatment within the uterine cavity will cause distress; if the cervix alone is treated, there is never any complaint. The syringe is filled with the medication, and the tip pointed upwards, to force all the air out of the sound applicator, the set screw is adjusted on the piston stem, from five to ten minimum,

and the applicator inserted to the point desired. Where gentle pressure is applied, to force out the medicine, and the instrument withdrawn, and a tampon of cotton applied to the os uterus, to absorb any superfluous medication which may come away later. This very simple means of treatment is applicable in many cases which will be reviewed later.

ELECTRIC UTERINE CURETTEMENT.

The word curette is taken from the word "cure," meaning to cleanse, as applied in surgery to scoop or scrape. In office practice, electricity provides us with a more convenient and agreeable means of accomplishing the same results, without the aid of an assistant.



GYNECIC SET OF ELECTRODES

The specialist following this line of practice cannot afford to overlook the most complete assortment of appliances adaptable to his work offered in this set.

1 Set Goldspohn's Copper Intra-Uterine Electrodes.
Cataphoric Vaginal Electrode.

1 Neiswanger's Cervix Cataaphoric Electrode.

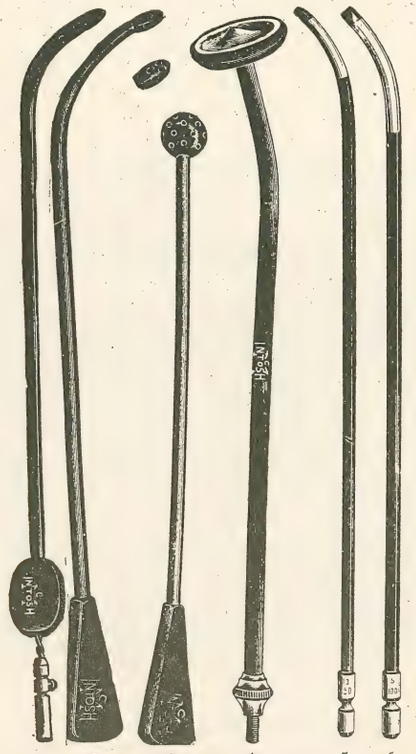
1 Hayes' Abdominal Electrode.

1 Goelet's Bi-Polar Vaginal Electrode.

1 Goelet's Zinc Dilator Set.

The object of curetting the uterus is to remove fungous degeneration, due to chronic endometritis. Retention of adherent placental villi, after miscarriage, etc. This is accomplished by the acid radical of the positive pole of the galvanic current, as it is by no other means. The technique of the operation is as follows:

The patient is placed in the dorsal position, with a large electrode at her abdomen, attached to the negative pole; a copper wire intra-uterine electrode is inserted to the fundus of the uterus, attached to the positive pole, and a current from 20 to 30 milliamperes is used, the electrode remaining about ten minutes. The



1 2 3 4 5 6

1. Nieswanger's Cataphoric Electrode for Prostetic Urethre.
2. Nieswanger's Cataphoric Edectrode for Urethre.
3. Nieswanger's Cataphoric Cervix Electrode.
4. Fitz Hugh's Electrode for Erosions.
5 and 6. Nieswanger's Copper Intra-Uterine Electrodes.

current is now turned off, and the electrode is gently rotated until it is loosened, then it is withdrawn, and you will find it covered with the endometrium, and you have accomplished the same results as you would by the more bloody and inconvenient method of curretting

the organ. This is repeated once or twice a week, until you have removed every particle of diseased tissue.

THE COMBINED TREATMENT.

By the use of the foregoing treatments, either used singly, or combined with the addition of electricity, and other physiologic methods, we are able to master many of the diseases of women, and "stay the hand of the surgeon." In order that the reader may readily comprehend the practical application of these different treatments, I will illustrate their use as applied to disease.

FUNCTIONAL DISEASES OF WOMEN.

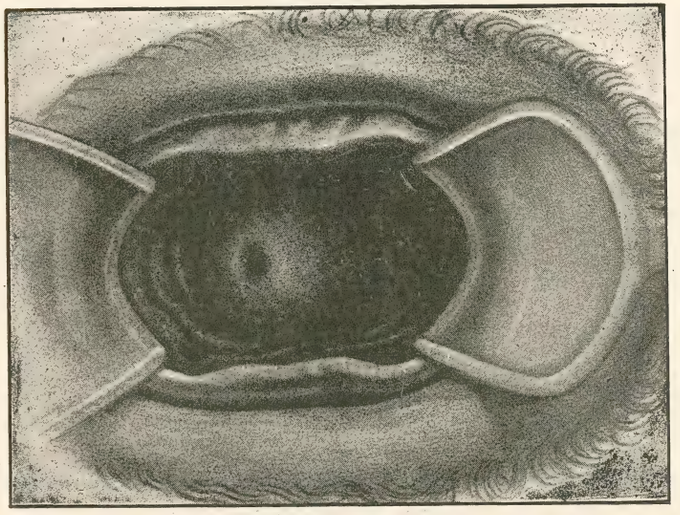
From puberty to the menopause, the functional diseases of women offers a very important part in the practice of medicine, and there are very few women indeed, who pass this period of womanhood without experiencing some of the disorders of the menstrual phenomena.

AMENORRHOEA.

This condition is usually divided into two distinct classes. First, absence of the menses in girls who have never menstruated, and, second, suppressed menstruation where the flow having once been established fails to appear at the regular time. The absence of menstruation is a normal condition during pregnancy, and while the mother is nursing her child.

CAUSE—Non-appearance of the menses is a frequent malady of girlhood, and may be due to a variety of causes, as lack of pure air, sunlight and proper exercise, improper and insufficient food. Anæmia, chlorosis, consumption or other wasting diseases; malformation of the generative organs. Suppressed menstruation is most generally caused by exposure, such as getting the feet wet and body chilled. Intense excitement and excessive study will cause it, but unless the excitement or study be constant, the system reacts healthily, and the trouble soon disappears. Acute diseases, such as typhoid and scarlet fever, frequently suppress the menses, while displacements of the womb are among its causes.

SYMPTOMS are both local and general; some of the local symptoms are pain and a sensation of weight in pelvis; dragging feeling in groins, weakness and bloating of limbs. The general symptoms are such as langour and debility, palpitation of the heart, difficult breathing, dizziness, shooting pains and cramps in the different parts of the body, and a long train of both



INFANTILE UTERUS.

bodily and mental symptoms may ensue, indicating a derangement of one of the most important organs of the body. One of the most singular results of suppressed menstruation is a condition known as Vicarious Menstruation, where the discharge develops at some other part of the body. This flow may occur at the regular time from the nose, gums, breasts, bladder, or from sores that may be on the body.

TREATMENT of amenorrhœa requires the most discriminate care and attention to ascertain if possible, the

exact cause. Careful study should be made of the habits of life and the mode of living. The patient should always have plenty of out-door exercise, such as walking and riding in the open air, and indulge in such pastimes as conduce to good health and cheerfulness of mind and general tranquility of both mind and body.

If due to anæmia or chlorosis, the uterine tonic with Blaud's mass, is of the greatest value. The prolonged vaginal douch and sitz bath, before retiring, will also be of great assistance in establishing a normal circulation in the organ. This should be followed by the extra-uterine application, and another vaginal douch in the morning. This treatment, continued for some time, will generally suffice in a large percentage of cases, where mechanical obstruction is not present; if by the use of the speculum is revealed the "infantile" or undeveloped uterus, with congenital stenosis of the cervical canal, (see accompanying illustration), electricity is by far the best means of permanently dilating the canal, and assisting nature to develop this organ. The patient is placed in a dorsal position. A large, flat electrode, attached to the positive pole of the continuous current, is placed over the abdomen, and an olive shaped tip electrode, just about one size larger than the constriction, attached to the negative pole, is gently inserted into the uterine canal, until it meets the constriction; the current is now turned on, using from five to seven milliamperes, from five to ten minutes, interrupting it through the rheotome every two seconds, during the treatment; these interruptions produce a series of contractions and relaxations, (electric massage), and as a rule, the electrode will pass through the stricture; if it does not, repeat the operation, at the end of three days; as a rule, however, the electrode will pass the stenosed part. At subsequent treatments larger electrodes may be used, until the canal is permanently dilated. This is our most successful treatment for all forms of stenosis of the uterine canal. If the uterus is undeveloped, as is the case illustrated here, our attention is now called to the development of this organ.

The switch is changed to the induced current, and with the electrode en situ, the rheotome is arranged in circuit for forty or sixty interruptions per minute, with the rheostat. We supply sufficient current to be agreeably tolerated by the patient. Contractions should be distinctly felt, but not painful. These treatments should be continued from three to ten minutes. By continuing this treatment at intervals of three or four days, for a few weeks or months, we will succeed by this method, where other means have failed, as we have softened the indurated tissues, strengthened the muscular walls, dilated and increased the blood supply.

DYSMENORRHOEA.

There are four varieties of dysmenorrhœa, which are classed as follows: First, obstructive; second, congestive; third, neuralgic; and fourth, membraneous.

The Cause and Symptoms—In the obstructive variety some organic impediment hinders the exit of the menstrual blood from the uterus, which gradually becomes distended and painful from the spasmodic efforts to discharge the menstrual fluid. If these efforts prove successful there is an interval of relief.

Flexions and versions of the uterus may occlude the canal of the neck of the organ, thus preventing the free escape of blood, causing intense suffering. In fact, this variety of dysmenorrhœa may be caused from any constricted or narrowed condition of the neck of the womb, whether it be the results of inflammation, congenital malformation, or the improper application of strong caustics used by incompetent physicians.

In the congestive variety, the mucous membrane lining the womb seems to be the seat of irritation. The blood flows into the small blood vessels in greater abundance than is natural, these vessels become congested and enfeebled and so altered in their sensibility as to cause much excitement and pain. This variety may be associated with inflammation of the ovaries, peritoneum, bladder or other surrounding organs. Before the flow is established there is always a feeling of

weight and heat in back or pelvis, headache, flushing of the face and some fever. These symptoms usually disappear after the discharge is thoroughly established.

The neuralgic variety of dysmenorrhœa is usually found in persons of a highly nervous temperament, who lead an indoor life, and are subject to neuralgia in other parts of the body, which at the time of menstruation instantaneously reflects upon the ovarian and uterine nerves, which seem to be the center of irritation and pain, and is at times so severe as to be almost unbearable. I have seen a number of women who affirm that the severity of labor pains were not so great as those caused by this disease. The neuralgic pains fly along the tracks of the nerves to different organs, and may sometimes be transferred to the uterus or ovaries and sometimes elsewhere, producing nausea, headache and often delirium and convulsions. Ovarian dysmenorrhœa is applied to a class of cases which are associated with diseases of the ovaries. There is pain between the periods in the region of the ovaries, which is aggravated by pressure and exercise, and greatly increases at the time of menstruation. In the membranous variety of dysmenorrhœa the entire mucous membrane lining the cavity of the womb in consequence of some morbid process, is gradually detached and dispelled during menstruation. They are steady pains at the commencement of the menstrual flow, but they increase in violence and become decidedly expulsive. The mouth of the womb gradually dilates and finally the membrane is forced out, attended by a slight flow of blood and an entire subsidence of pain.

TREATMENT.—The treatment of dysmenorrhœa should consist of such means as will establish a normal and healthy circulation of blood in the parts, and thus relieve congestion and pain. For this purpose relief is obtained by means of using prolonged vaginal douch or hot sitz baths are of much benefit in relaxing the parts; this is followed by the extra-uterine application. This application alone will often give relief, nearly as

rapidly as a hypodermic injection of morphine, and may be applied every three hours, if necessary, during the period, with marked benefit, and, by continuing this treatment in conjunction with the uterine tonic, during and previous to the menstrual intervals, has permanently cured many obstinate cases in my hands. I generally advise these patients to take one or two uterine tonic tablets four times a day, and each night before retiring, use the prolonged vaginal douch, and insert the extra-uterine application, which is allowed to remain until the next night. This treatment is continued each day, for a few weeks or months, until all distress at the period has disappeared.

In connection with this treatment, I have many patients visit the office twice a week, where I keep the cervical canal dilated, with the electric current, and treatment described in Ammenorrhoea. If the cervical canal continues to remain open, and we are sure there is no obstruction, the continuous current is applied only to the cervical canal, with the negative pole: the positive pole to the abdomen. This means of keeping the uterine canal open with electricity, and relieving the congestion by the other medications, will establish a permanent cure in fully ninety per cent of all cases of obstructive congestive and neuralgic dysmenorrhoea. In the membranous variety, which, fortunately, is not very common, we have a different condition to deal with, and electricity alone will usually destroy and prevent the formation of this membrane, if used as described under the caption of "electric currettment," to which you are referred.

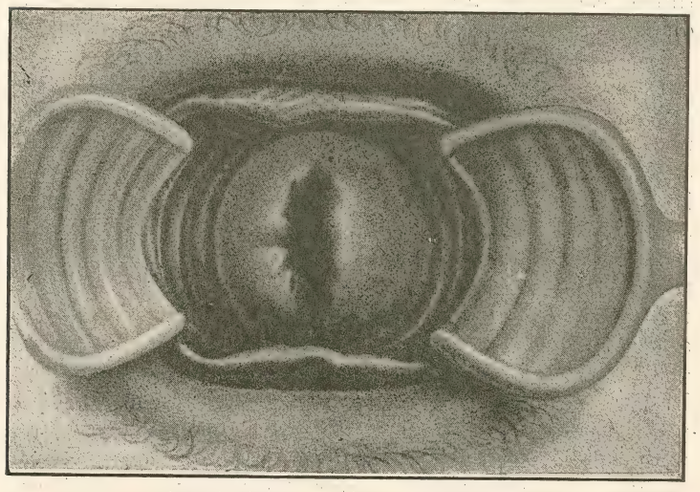
MENORRHAGIA AND METORRHAGIA.

Menorrhagia, or excessive flow at the menstrual period, and metorrhagia, a flow during the interval of the period, are not diseases within themselves, but are symptoms of disease, bearing different classifications; thus we find these conditions existing in fibroid tumors, cancers, retention of the secundines after miscarriages, endometritis, etc. Whatever may cause these profuse

hemorrhages requires our attention to check the flow, and remove the cause, if possible; this will be thoroughly discussed in treating the diseases in which this condition occurs.

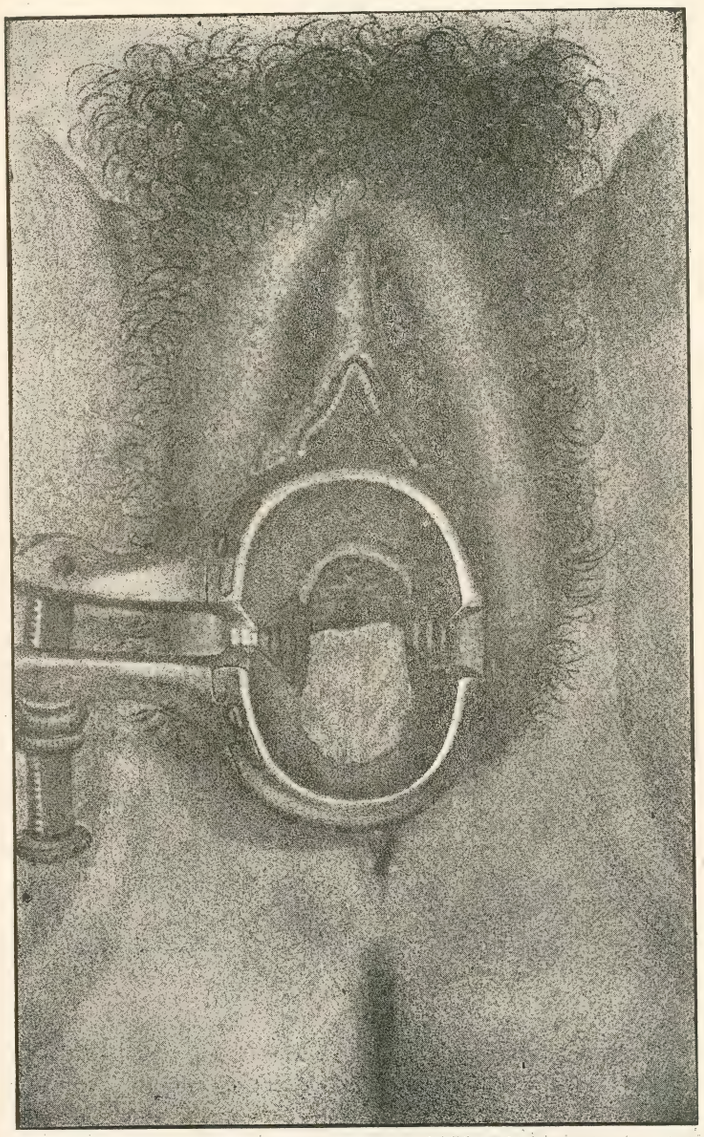
METRITIS AND ENDOMETRITIS.

Endometritis is an inflammation of the mucous membrane lining the womb, while Metritis is an inflammation involving the entire organ. The latter is generally the extension of the former. Their symptoms are so near alike that they can well be discussed together.



CONGESTED CERVIX OF METRITIS.

CAUSE.—Catching cold or imprudence at the menstrual period, the extension of simple or specific inflammation of the vagina or other pelvic organs, injudicious or unclean intra-uterine medicated injections. The unskillful use of instruments and appliances, such as sounds, curettes and stem pessaries in the hands of inexperienced physicians, bear the responsibility in many cases. Improper and neglected attention during child-birth, miscarriage, and the lying-in period, deformities of the womb and canal, tumors, etc.



ENDOMETRITIS—UTERINE CATARRH.

In making a speculum examination of the external os, the first thing which attracts our attention is the enormous amount of glairy, tenacious, semi-fluid, ropy substance, oozing from the external os, (see accompanying illustration). This is the condition referred to, by the older writers, as "Uterine Catarrh," and is the pathognomonic symptom of these diseases. There is, of course, profuse leucorrhoea; as the result of this discharge, derangements of menstruation, especially menorrhagia and dysmenorrhoea are often present, due at times to the obstruction of the canal by the tenacious substance.

Sterility is also traced to the same cause. There are, also, bearing down pains, and sensations of weight and dragging in the back; sensitiveness over the womb. Nausea and vomiting may be present, indicating a sympathetic irritation of the digestive organs.

TREATMENT—In this condition we have a diseased membrane to deal with, and our only means of establishing a permanent cure is to remove this old, diseased tissue, in much the same way as we build new skin on the face with the ecorchement treatment. This is done by a combination of medical agents with electricity. By this, apparently, simple method, "currette" the uterus with a copper electrode, attached to the positive pole, as previously described. After this treatment, inject about eight minims of the extra-uterine application. This treatment should be repeated about every four or five days, for a month or longer, or until the discharge has ceased, and the organ resumes its normal condition. During this time the patient is advised to use the vaginal douch before retiring, followed by an extra-uterine application, and the uterine tonic tablets, or whatever other treatment is required; this is a remarkably successful treatment. We have "curretted" the uterus, and stimulated the tissues by electricity, and reinforced this treatment by depleting effete matter, and reorganizing the circulatory nervous system of the female generative tract.

CORPOREAL ENDOMETRITIS, EROSIONS, ETC.

In making all speculum examinations, the first thing the physician observes is the condition of the os uterus, as this is the "tell tale" of many diseases. These objective symptoms often allow us to determine, at a glance, the exact condition of local or more remote disease; it is, therefore, one of the methods of diagnosing disease without asking any questions.

Simple erosions are usually the result of excoriating discharges, and usually heal after we cure their primary cause. They may be produced by injury from syringe nozzle and other instruments, or the extension of inflammation from the vagina, too hot or corrosive injections, etc.; on the other hand, the neck and os of the uterus may picture out morbid conditions, cancer,

EXPLANATION OF ACCOMPANYING ILLUSTRATION, PAGE 306.

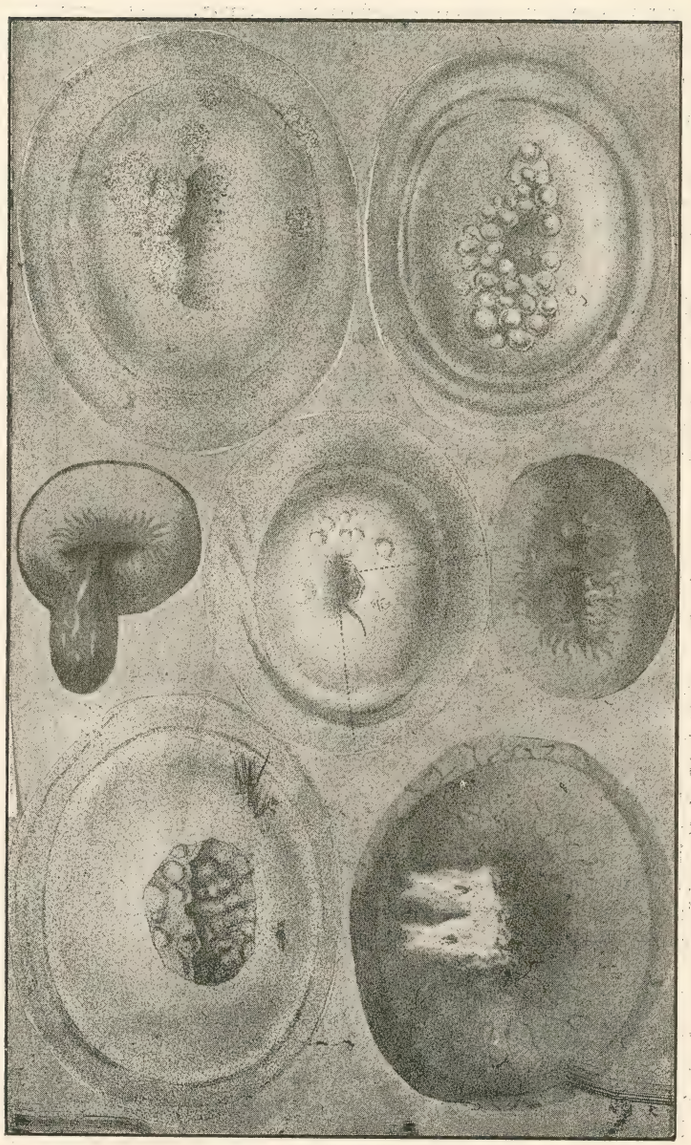
Top Cuts—1. Simple Granulations. 2. Follicular Cysts.

Middle Cuts—1. Polypus. 2. Follicular Cysts and Structures of Cervical Canal. 3. Cysts with Fungus Ulceration.

Bottom Cuts—1. Excrescences of the Cervex. 2. Corporeal Endometritis.

(see tumors), or benign tumors, polypus, fibroid, etc., many of which are illustrated in this chapter. Where an erosion exists uncomplicated it may be readily healed by a few applications of the Fitzhugh electrode, (illustrated here), attached to the positive pole, using thirty to forty milliamperes, after which they are painted with the intra-uterine application; generally three or four treatments will establish the desired results. Follicular erosion should be opened with the knife, and afterwards treated in the same manner.

Corporeal endometritis is a diseased condition involving only the membranes of the cervical canal. This is treated with the intra-uterine copper electrode, attached to the positive pole, and the same technique carried out as when the cavity is treated, previously described.



LACERATION OF THE CERVIX.

The formation of the cicatricial tissue at the cervix, as the result of laceration during child-birth, was formerly removed only by surgical means. The cataphoric use of thiosinamine promises a means of revolutionizing this practice, as these cicatrices may be dissolved and removed by this more agreeable procedure. The technique of which is as follows:

Dr. Nieswanger, to whom is credited this valuable procedure, has designed special electrodes for this and similar cataphoric operations, which consist of a brass stem, with a platinum terminal, isolated its entire length with hard rubber, and the platinum tip surrounded by a perforated hard rubber ball, which can be removed for the purpose of covering the tip with medicated cotton. The medication used is the same as given in treating scar tissue, on another page. With the abdominal pad in position, attached to the negative pole, and the cataphoric electrode connected to the positive pole, previously saturated in the thiosinamine solution, is placed in contact with the cicatricial tissue on the cervix, and fifteen to twenty milliamperes of the continuous current turned on through the rheostat, and the treatment continued about ten minutes. It is often surprising to note the action this remedy seems to have in softening this tissue; it has a tendency, however, to abrade the healthy mucous membrane, if the current is too strong, and these treatments should be continued at least once a week, to insure success.

VAGINITIS AND URETHRITIS.

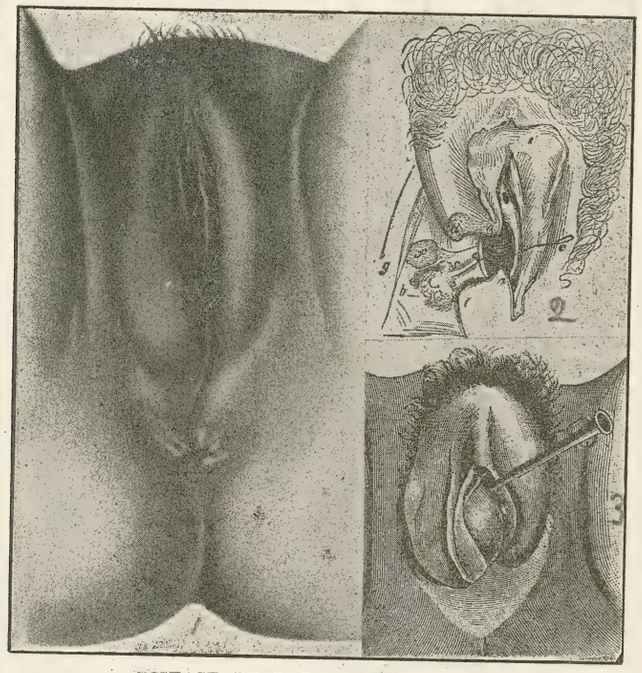
Vaginitis and urethritis are so closely related that they may be discussed together. They consist of a simple or specific inflammation of the mucous membranes of the vagina or urethra. These diseases may be caused by the use of too hot, medicated or caustic injections, misfitted pessaries, and other mechanical appliances. Gonorrhœa infection is, however, responsible in the greatest number of cases.

The patient will complain of pain, heat and swelling in the vagina, and upon examining the parts, it will be observed the mucous membrane of the vagina is highly inflamed, with numerous granulations upon the surface, (see accompanying illustration B above, A below). By making pressure upon the urethra, (see A above), a few drops of greenish pus will ooze from the cavity. The inflammation may extend upwards, and the uterine canal will be filled with a muco-purulent discharge, (see B below), which will later develop into chronic endometritis. If there is any one condition in which the extra-uterine application will prove its specific value, it is in the treatment of Vaginitis. Within ten minutes after the treatment is applied the distress will subside by its palliative effect, and by continuing this treatment, a thorough and permanent cure will rapidly follow. Each treatment should be preceded by the vaginal douch, and in severe cases, the application should be applied four or five times a day, in a cocoa-butter base; if the cervical canal and urethra are affected, they should also be treated with bougies, containing protargol, during the acute stages.

If the healing process is retarded, from any cause, or the case has developed into a sub-acute or chronic state, involving the deeper folds of epithelium, electricity is one of the most potent measures. The germicide and astringent effects of copper, when cataphorically deposited by the copper electrode, from the positive pole, and continuous current, is so powerful it will rapidly destroy gonorrhœa, or other existing germs; usually, three or four treatments will be sufficient to establish a complete cure. The technique of the operation is as follows: A local anæsthetic should be injected into the urethral canal, as the patient will not be able to withstand the pain, in many cases. The copper electrode is now introduced, attached to the positive pole, and from five to ten milliamperes of current used, for about five minutes, repeating this operation every four or five days, until a cure is established.

INFLAMMATION AND CYSTS OF THE BARTHOLINIAN GLANDS.

As a consequence of vaginitis or injury, inflammation and suppuration of the glands of Bartholin is of very common occurrence. These glands lie beneath the labia minora and majora, and are about one-half inch long; sometimes develop, especially in prostitutes, as large as an almond. They contain a duct of suffi-



DISEASE OF BARTHOLINIAN GLANDS.

cient size to admit a bristle, which is about one-half inch long. The accompanying illustration, (Fig. 1), shows the gland in the acute stage of inflammation; the upper right hand cut shows a dissection of the parts, exposing the glands, and right lower figure, the formation of a cyst, as the result of the closure of the duct.

The polliations in women are due to this gland.

A simple cyst (Fig. 3), may develop, varying in size from a nut to a goose egg, and contain a colorless fluid, sometimes mixed with blood. The contents have been evacuated, and after aspiration, treated like a hydrocele, by injecting thuja, (see hydrocele), or ten or twelve minims of a chloride of zinc solution. Another later procedure, is to evacuate the contents, and fill the cyst with paraffin, which outlines the cavity, which is thoroughly dissected away, like a fatty tumor, using cocaine to obtund the pain.

Inflammation and suppuration of this gland is, however, of the most frequent occurrence following gonorrhœa, (Fig. 1); by pressing on the duct, a greenish or milky pus is expelled. These may be freely opened, and treated as a common abscess, and, if the inflammatory action re-occurs, complete extirpation of the gland is necessary.

URETHRAL CARUNCLE.

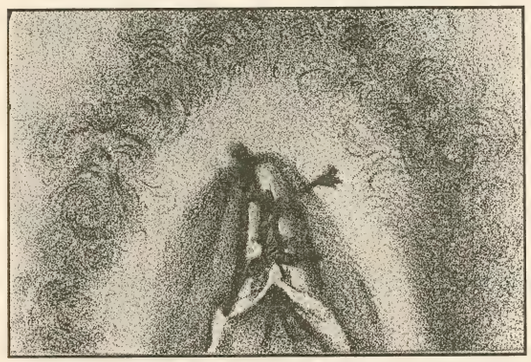
Is an inflammation of the urethral glands, at the orifice of the urethra, generally caused by gonorrhœa, and other irritating discharges. This is one of the most painful, apparently little, affections of the female organs. The papillæ around the mouth of the canal are deep red, and will often not allow the gentlest manipulation. These irritating ulcers may often be exterminated by the use of nitric acid, or nitrate of silver, if only superficial, but the best and most rapid means is to treat the growth with an electric needle, from the negative pole, in the same manner that warts and moles are destroyed. The parts should be previously anæsthetized with cocaine; carbon dioxide snow is also a very rapid and efficient means of destroying these growths.

IMPOTENCY AND STERILITY.

While text books for the treatment of diseases of women are prolific in discussing the pathological conditions of the female sexual system, very little is said

regarding impotency or sexual frigidity, and sterility; yet these two conditions, more than any other, are subjects which greatly concern the marital happiness of man and wife. If we were to trace the court records, we would find stringent laws regarding impotency in the male that incapacitate manhood; yet the unwritten law regarding sexual frigidity, or apathy in the female, remains silent with the physician, who is constantly consulted regarding this subject. It is, therefore, his duty to look the subject square in the face, and institute such means as will cultivate this "active function of love," which is so essential to conjugal peace and happiness. I am satisfied that the physician can diminish the frequency of divorce, domestic infelicity and social evils, by correcting many physical defects and pathological conditions of the female sexual system. Our Creator has designed the functions of these organs for the harmonious procreation of the species, and any apathy which may exist by either sex, cannot be corrected by law-makers or statesmen, as these unwritten laws are only revealed to the physician, whose duty it becomes to advise and treat these patients. Every physician is familiar with the fact that congenial sexual relations are conducive to happy unions, and any deviation from this law is usually followed by domestic infelicity. What is true of sexual apathy is likewise the rule with sterility. It is the heart's desire of nearly every man and woman to procreate, and be blessed with sons and daughters, to smooth the rough roads at the decline of life, and there is nothing quite so disgusting to a well-bred physician as to listen to a woman boast of the number of abortions she has had performed, and later meet her on the street, leading a poodle dog, which she calls "baby"; really the string which unites the two links together, species which is often difficult to differentiate, from a moral and mental viewpoint, yet some "pin-headed" philosopher has the courage to call this a typical American family.

There are two degrees of sexual frigidity in women. The first is where there is absolutely no desire, no feelings for or during the sexual embrace, and the second is where this function is partially developed but without gratification, and the question arises: what can be done to awaken these organs to life and activity? There is only one remedy, which, apparently, has a specific aphrodisiac effect upon the female sexual system, and that is galega; the evolution of this drug is somewhat interesting. Galega grows in its natural state, in large quantities, in Switzerland, and is also cultivated to a



LINE OF INCISION AND SUTURES IN POSITION.

great extent, and given cows, for the purpose of increasing their supply of milk. Its stimulating effect upon the mammary glands induced many women to use the remedy for the purpose of developing the bust, and rounding out the form; it was discovered that the women who used the drug for this purpose found their sexual appetite was also greatly increased. It is this evolutionary proceeding which has introduced galega as one of our foremost remedies in the treatment of sexual apathy, in both male and female, and by combining this drug with other remedies, bearing a therapeutic action upon nerve centers, as is given in the "pill that will" in the succeeding chapter, much can be

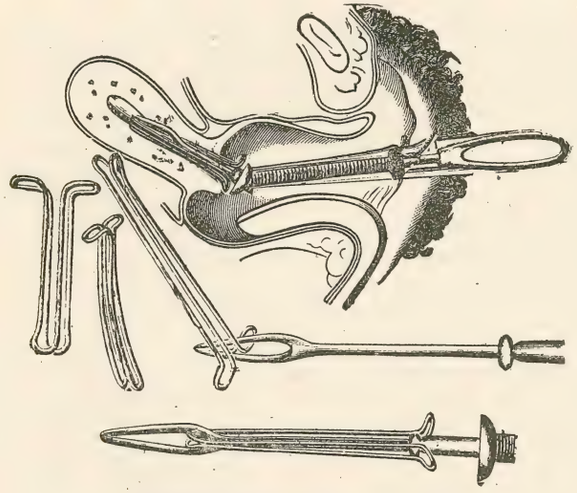
done by internal medication to develop and awaken this dormant function.

The surgical treatment consists of denuding the clitoris. This operation is analogous to circumcision in the male. The technique of the operation is simple; the hood is pinched up with thumb and forefinger, and an injection of cocaine is given to obtund the pain; after the anæsthesia is completed, the hood is lifted from the clitoris, and a V-shaped incision is made from the apex downward, (see accompanying illustration), the denuded edges of the integument, and mucous membrane are united by four sutures, two at the apex and two at the base, (black silk was used in the accompanying illustration, which may be confused with the line of incision), the wound is dressed in the usual way, and the sutures removed as soon as healing has taken place. This medical and surgical procedure has been the means of restoring this function in a great many cases in my hands, and you will find your efforts greatly appreciated by both husband and wife.

STERILITY.

Although sterility is frequently found in women with sexual apathy, these conditions are in no way related, as there are several causes why women cannot conceive and bear children. The principal of these is stenosis of the uterine canal, due to endometritis, where the uterine canal is obstructed with the thick tenacious secretions, preventing the entrance of the spermatozoa, as is illustrated on a preceding page. The history of many of these cases are the results of criminal abortions; on the other hand, where a woman has never conceived, the uterine canal will often be found in a contracted state, as in the infantile uterus. These two conditions are conservatively estimated to be the cause in ninety percent of all cases, and by establishing a healthy condition of the membranes of the uterus in the

former, and using either mechanical, or other dilatory means, in the latter, a great number of barren women may be made fertile. The method of maintaining dilation of the uterine canal by electricity has been previously described. Many physicians prefer, however, mechanical dilators, of which Outerbridge's stems offer the best means. These instruments are only used where the uterine membranes are in a healthy condition, for the purpose of keeping the canal continuously dilated,



OUTERBRIDGES, STEM, DILATORS.

and are of equal service in many cases of dysmenorrhœa, due to a constricted canal. Of course if any form of uterine catarrh exists, occluding the canal, they will not accomplish their purpose in sterility, and the diseased condition should be treated and cured first.

Dr. J. Marion Sims was the first to introduce artificial impregnation by injecting semen with a intra-uterine syringe; although this method has never become popular in medical literature, it is more frequently practiced than is generally supposed, and will be found successful in a great many cases.

Genito-Urinary and Venereal Diseases.

The diseases resulting from the "great social evil" have always contributed liberally to the physician's yearly income, as it may be conservatively stated that one-tenth of the physician's income, comes from this source; therefore, placing the average physician's income at $1,000.00 per year, there would be paid $14,500,000 for medical fees in America, for the treatment of Genito-urinary and venereal diseases. This is such a profitable branch of medicine that the advertising physicians have nearly abandoned other diseases, stating that they can receive larger fees, with less labor, than are obtained in any other specialty. It is this reason that makes this specialty so conducive to "quackery." The medical and minor surgical therapeutic procedures have been greatly improved in Genito-Urinary and venereal diseases, within the last few years. We will, therefore, outline many of the modern methods of treatment used in these special diseases.

URETHRITIS.

The most prevalent of venereal diseases has been described, from time to time. under the synonymous terms blenorrhagia, gonorrhœa, clap and urethritis. This disease, for a very long period, was a fruitful theme of debate, to identify this condition from syphilis. The history of this disease will date back to the origin of the first unclean woman, and that means the origin of the species; therefore, Rudyard Kipling need offer no apology for writing "the female of the species

is more deadly than the male." Moses, in his wisdom, was the first to recognize and institute prophylactic measures to prevent this, and other venereal diseases; and in his code of moral laws the males were not only required to be circumcised, as it was thought the prepuce was responsible for spreading disease, but the females were required to be separated from their husbands during the menstrual and other periods. These are the first prophylactic measures which history has given us. The vagina offers a most prolific field for the generation of germs, containing pathogenic properties; its exclusion from light, and the decomposition of the secretions from her own generative organs; together with the physiologic secretions from the male, the semen, and the irritation during cœtus makes it a particularly favorable seat for decomposition, and the development of irritating toxins.

The treatment of gonorrhœa consists of both internal and local measures. The internal medication may cover a large number of remedies, but the true specifics are few in number. The principal effects desired is to relieve the pain during the acute stages, and render the urine alkaline. The following, in tablet form, will be found very serviceable:

℞	Ext. Kava-Kava	1 gr.
	Potass. Bicarbonate	2 gr.
	Oil Sandal	1 gr.
	Oil Cubeb	½ gr.
	Balsam Copaiba	½ gr.
	Iron Sulphate	½ gr.
	Salol	1 gr.
	Pepsin Pure	½ gr.

Two tablets three or four times daily.

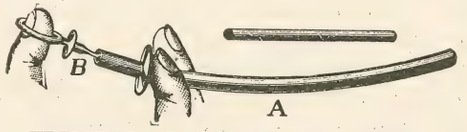
The local treatment is of the greatest importance, and I always prefer these medications in the form of urethral bougies, as it is more accurate, convenient and thorough than other forms of local medication. These treatments are supplied in the form of long, narrow pencils, which are used with an applicator, (as is illus-

trated here), or each bougie is wrapped in paraffin paper coil, or tube, which answers the purpose of an applicator, and also protects the bougies from melting when not in use. This is the best means of reaching all areas of the urethral tract, and has the advantage in prolonging the medication to any diseased area.

The following formula in bougie form is as near a specific for urethritis as can be obtained by medicine:

℞ Protargol . . . . . ¼ gr.
Hexamethylenamine . . . . . ¼ gr.
Quinine and Urea hydrochloride . . 1-6 gr.

Sig.—Use a bougie three or four times a day, and before retiring. Always instruct your patient to urinate before each application, as this clears the canal of toxic secretions.



URETHRAL APPLICATOR AND BOUGIE.

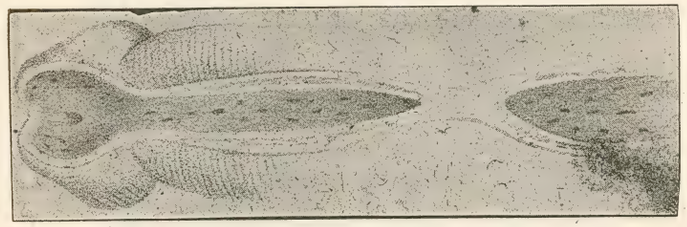
In resuming the above formula, we have the combined astringent and antiseptic effects of Protargol, which has long been recognized as superior to other astringents, or germicides, in the treatment of this disease; this is reinforced with Hexamethylenamine, whose relation to formaldehyde makes it a most favorable treatment for the destruction of micro-organisms. Quinine and urea hydrochloride is not only a mild astringent, but also an anodyne and prolonged anæsthetic. The addition of this remedy is indispensable in treating this disease, as its obtunding properties immediately stop all pain and irritation, while the other medications are effecting their permanent results. In fact many patients will state they would not know they were diseased if it were not for the discharge.

STRICTURE.

Stricture is a narrowing of the urethral canal from any cause, and may be spasmodic, congestive, inflammatory or fibrous. This is one of the most frequent

complications of gonorrhœa, and although the different forms cannot always be differentiated clinically, it becomes the physician's duty to institute a means whereby the canal will maintain its normal caliber. For this purpose, there have been many different treatments used, from time to time. Space will not allow a discussion of all these methods: we will, therefore, confine our treatment to the more simple and practical measures.

A large percentage of strictures following gonorrhœa are the results of forming fibrous tissue, due to the inflammatory process narrowing the canal; thus the treatment is directed to dilate or stretch the canal to its normal caliber, or absorb the fibrous tissue by electricity or medicated bougies. The gravity of stricture will depend upon its distance from the meatus; the nearer this orifice the more easily cured, and the farther



FIBROUS STRICTURE.

the distance the more difficult to master. Forced dilation does not offer us a successful treatment, except in the most superficial constrictions. When the stricture is deep seated, they may be made to admit a large sized sound, and we congratulate ourselves that we have relieved the constriction only to be disappointed by the patient returning in a few days with no apparent improvement. It has been demonstrated, however, that thiosinamine applied in bougies, after dilation, would produce permanent results. The technique of the operation is as follows: locate the seat of the constriction, and dilate the stricture with graduated sounds

as far as possible, and, after withdrawing the sound, insert a bougie composed of the following:

℞ Thiosinamine . . . . . ½ gr.
Resorcin . . . . . ¼ gr.
S. E. Thuja . . . . . ¼ gr.

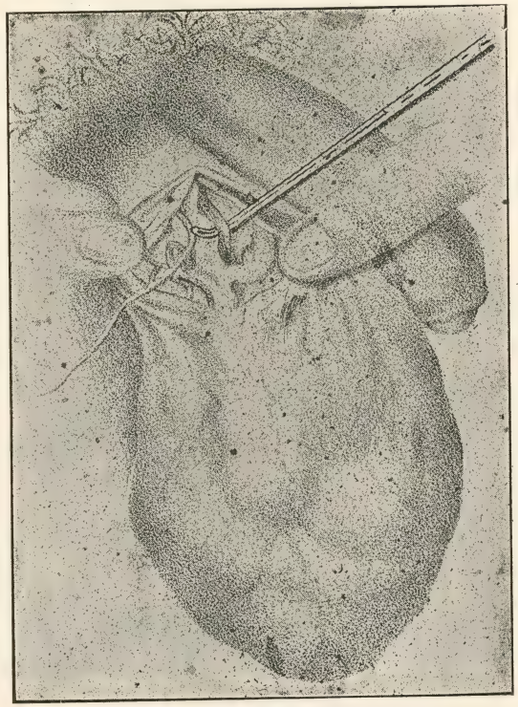
A few of these dilatations and medications will usually overcome the most obstinate cases of urethral constriction due to fibrous tissue. Thiosinamine may also be used by cataphoric application as follows: the cataphoric urethral electrode, (shown on page 275), is saturated with the thiosinamine solution, as for treating scar tissue. This is inserted to the constricted area, on the positive pole. The negative pole placed on the abdomen, and five milliamperes of current used for five minutes. A very few of these treatments will be followed by the most excellent results.

VARICOCELE.

The frequency in which varicocele occurs, in the adult male, has offered a field for an independent specialty, and nearly every city contains a "Varicocele Specialist," who, as a rule, charges the uniform price of $100.00 for treating this disease. The injurious effects depicted by these specialists, are greatly exaggerated, however, with a view of depleting the purses, by frightening the victims with the statement that this disease will result in impotency, while the truth remains that this disease is not a serious condition, and produces comparatively little discomfort.

Surgeons differ greatly in estimating the frequency in which this disease occurs. Dr. Henry, police surgeon of New York, found 41 cases in 2,000 robust and healthy men, examined for police service. Ludston gives an estimate of 5 per cent. in men examined for military service, which would give a better percentage for average healthy men. At any rate, varicose veins are more frequently found in the plexis of veins surrounding the spermatic cord than in any other part of

the body, and often require treatment to cure this condition, even if the disease is not dangerous. It relieves the annoyance, portrayed by bold advertising, upon the minds of many neurotic patients, and prevents them from falling into the clutches of the quacks, who point at this condition as a consequence of noctural emissions, masturbation, and resulting in "physical decay" or impotency.



THE OPEN LIGATION OPERATION.

There have been many operations devised for the relief of this condition; the two which have been the most universally successful are the open ligation, and the subcutaneous ligation. I prefer the former, as you are not required to work in the dark. The open liga-

tion method is a very simple operation, and you have the minute anatomy constantly under your observation, and avoid any possibility of including in your ligature tissue which is not required, and often leaves unfavorable results by not completely strangulating the veins.

TECHNIQUE OF OPERATION.

The field of operation is made surgically clean by shaving, and bathing the parts with a bichloride solution, and a local anæsthetic injected into the parts to obtund the pain; a small incision is made, high up as possible, the varicose veins located, and tied with chromicized catgut, being careful not to include the vas deferens or other tissues; the wound is now closed. under antiseptic precautions, and sealed with collodion. In the subcutaneous operations the same results are attempted, but it is almost impossible to isolate the veins and ligate them without including other tissue, even in the most skilled hands. The technique of the operation is as follows:

After observing surgical cleanliness, and the use of a local anæsthetic, if necessary, (this is seldom required, however, in this operation), the Whitehead or Riverdine needle, threaded with an antiseptic ligature, is made to transfix the scrotum at a distance of the junction of the upper middle third of the distance from the inguinal ring to the testis; after the needle has passed through the scrotum the vas deferens should be located internally, and separated from the veins. The needle is now transversed to the point of first entry, and if the operation is successful, the two ends of the ligature tied, which includes the mass of veins producing strangulation. The point of puncture should be sealed with collodion.

HYDROCELE.

Hydrocele consists of an accumulation of serous fluid, in the tunica vaginalis testis caused by continuous irritation. This is found in ten percent. of the male population in Brazil and other tropical climates where the scrotum being relaxed and pendulous is more liable to injury. Wearing trousers tight in the crotch has also been given as the cause of injury. While there are several methods advocated to permanently cure this

THE HYDROCELE OPERATION.

condition the injection treatment, in its different forms, is in the greatest favor. There have been many remedies advocated for this purpose, among which may be mentioned all the astringents, sulphate of zinc, alum and the vegetable astringents depending upon tannin; tincture of iodine and carbolic acid are also general

favorites. The former is the most universally used, but the latter has been demonstrated to be of the greatest value, and owing to its anæsthetic properties renders the operation nearly painless. I prefer the tincture of thuja, however, to any of the injection remedies.

Many newly formed hydroceles are permanently cured by only withdrawing the fluid, and in reviewing this history, I only use this means for the first operation, but if the sac is refilled, or in old chronic cases, the injection treatment should be used. The technique of the operation is as follows:

The tumor is held in position with the left hand, while the right hand forces a trocar well into the sac, see illustration, avoiding the testicle; the trocar knife is now removed, and the fluid withdrawn, with the metal cone of the trocar still inserted in the sac. A long, blunt pointed needle is inserted through the metal cone, through which is injected the following solution into the sac:

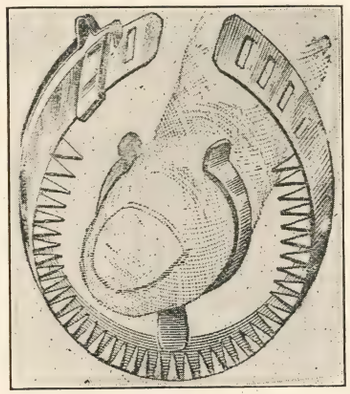
℞ Thuja (Lloyd's specific) . . . . . ½ oz.
Glycerine . . . . . 1 and ½ oz.

This should be manipulated rather vigorously until the entire surface has been thoroughly covered, and the solution is allowed to escape, and the site of puncture sealed with collodion. This is, as a rule, a very successful operation, and I prefer thuja to carbolic acid or iodine, and other astringents and caustic remedies, as we obtain an equal degree if success with less heroic measures. The patient should wear a suspensory bandage for a few days, and in old and feeble patients it is best that they should remain in bed for a few days until the reaction thoroughly subsides.

SPERMATORRHEA.

Spermatorrhœa, nocturnal emissions and impotency are the three conditions of the male sexual system which have offered the advertising physicians of the past the most profitable field for their operations, to commercialize medicine, by both local advertising and

in the mail order business; owing to their bold advertising in the yellow press, the regular physicians have, apparently, neglected these conditions, fearing, perhaps, if they would give them due consideration, they would be associated with the bold faced quack, but inasmuch as many state and national laws have stopped their operations, the general practitioner may now consider this a legitimate field. Through the cleverly worded advertisements of the charlatans, the laity have been taught that nocturnal emissions and spermatorrhœa are of the same condition; although spermatorrhœa has been defined as an involuntary loss of semen,



THE SPERMATORRHOEA RING.

independent of intercourse, it does not necessarily involve nocturnal emissions. True spermatorrhœa is caused from a weakness of the seminal ducts, while nocturnal emissions are a physiological phenomenon, characteristic of the vigor of youth. By painting, in these young minds, the picture of lost vitality, "weak manhood" and "general debility," which will terminate in placing the victims behind prison bars, and in mad houses, has constituted the blackest sheet in medical advertising; on the other hand the secretions which escape while straining at stool, and during sexual excite-

ment from the prostate and Cowper's gland have also been used in their argument to frighten their patients. What is there in the practice of medicine more condemnable than to attempt to create disease for the purpose of curing it for personal gain?

The above outlines the conditions described by some writers as pseudo spermatorrhœa. The fact remains that true spermatorrhœa is not of very frequent occurrence, but when it does appear, is the result of sexual excesses, masturbation or perhaps excessive nocturnal emissions, or a combination of all three causes, resulting in a weakness of the organs, whereby diurnal or nocturnal emissions take place without sensation or power.

The treatment of spermatorrhœa may include moral, psychic, medical and mechanical measures. The patient should be advised that nocturnal emissions, in the young and vigorous, is not of a serious consequence, as is portrayed by the quack, and unless this condition is at too frequent intervals will not terminate in serious results.

Masturbation is the most frequent cause, however, and although the patient will usually deny this practice, he should be emphatically advised to abandon the habit. Nocturnal emissions may often be relieved by sedatives, but the most positive way of mastering this condition is with the so-called "Spermatorrhœa ring," illustrated here; although this instrument is a product of an advertising physician, who in the past has reaped a fortune from its sale, it is now extensively used by many physicians. The ring is placed around the penis, while in a flaccid state, at its base on retiring, and if an erection takes place during the night it will expand and prick the organ, thus awakening the patient, who should be advised to urinate at this period before going asleep again; with the use of this instrument, and moral advice, we have at our command the only radical cure, as far as relieving the cause is concerned, but where these cases present themselves at a late hour, we have a different condition to deal with—Impotency.

IMPOTENCY.

Impotency has been described, by most writers, as existing in two forms viz: pseudo-impotency and true impotency. In the former there seems to exist, in certain individuals, a lack of confidence in themselves, or they may be impotent with blondes, and not with brunettes, and vice-versa; in others, the erection may be weak, with premature ejaculation. These are often due to conditions of the mind. He remembers the advertising literature of the quack, and comes to the conclusion that he is physically weak. It is this condition that the family physician has neglected and treated lightly, and the charlatan has magnified the evil consequences for large professional fees. The only treatment required for many of these cases is suggestive therapeutics, and relieving their minds of any impending danger. Do not laugh at his imaginary troubles, and actually drive him into the hands of the quack with your ridicule, but treat him with all the seriousness of a more grave condition. There are many ways of stimulating the sexual organs, whereby profound and prolonged erections may be maintained; the passing of a cold sound twice a week, or an application of the electric current, may produce the desired results. Premature ejaculations may be due to an excessively sensitive gland penis, as a consequence of a phymosed prepuce and circumcision will effect a cure, while much can be done in false or nervous impotency by establishing a feeling of self-confidence in the patient. True impotency due to an exhausted condition of the sexual apparatus and nervous system from excesses, will require more heroic measures.

Many remedies under the classification of aphrodisiacs have appeared from time to time, and although excellent results have been obtained from many of these, there are few specifics; the following, however, in tablet form, offers the best combination of medicinal agents I believe in present use. It has reached at least a sufficient degree of perfection to be referred to by many

physicians as the "pill that will." The formula is as follows:

℞	S. Ext. Galega	3 gr.
	Chromium sulphate	2 gr.
	Zinc phosphide	1/10 gr.
	Ext. Nux Vomica	¼ gr.
	Cannabin	1/10 gr.
	Cantharides	1/12 gr.
	Avenine	1/200 gr.

Sig.—A pill six times a day.

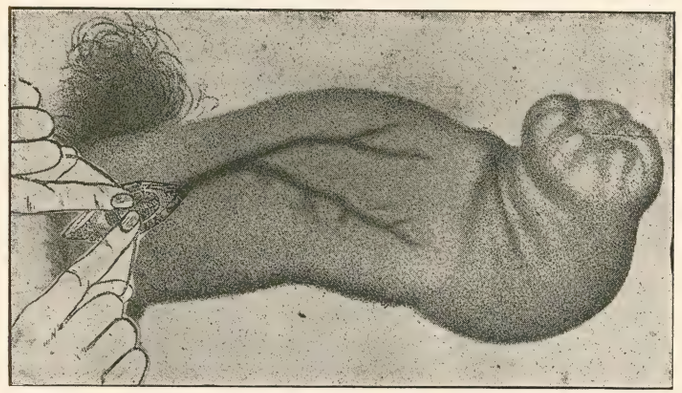
In resuming the therapeutic value of the above formula I believe Galega to be the most specific remedy we have for the treatment of impotency for either sex. It is a glandular stimulant and, apparently, has a select action upon the sexual organs of both sexes (see page 315.)

In conjunction with the above tablet I frequently prescribe the fluid extract of Galega in one-half dram doses, to stimulate the secreting glands of the sexual system, and I have often been surprised at the new life it establishes in dormant or worn-out sexual systems, in both sexes. This remedy is reinforced with Chromium sulphate, Phosphide of zinc and nux vomica; each bearing their tonic and stimulating influence to the nervous system. Cantharides may be called the true sexual excitant in small doses, which is likewise reinforced with the alkaloids, Avenine and Cannabin.

This tablet has a wide range of usefulness, and although it has achieved the name "the pill that will," through its success in treating impotency, it is of equal service in many other conditions, where a nerve tonic is required. It is one of the best medications for the tremor of alcoholism, and to build up the system after debauch, spinal and cerebral anemia, locomotor ataxia, and many other nervous diseases, are also successfully treated with this medication.

Vibratory massage with the ball vibratode from the tenth dorsal to the coccyx, using the medium speed and long stroke, occupying from six to eight seconds, at

each center, is of much more value in functional impotency. Electricity to the same area, with the brush applicator to the penis, has been successfully used in many cases. There has been rather elaborate cupping apparatus devised for the purpose of exciting the sexual system by increasing the blood supply, by the Bier method. A far better and more successful treatment, however, is to ligate the two superficial dorsal veins of the penis, (veins dorsalis penis superficialis); this is a very simple operation, and involves just sufficient technique to be called a "surgical operation," and is there-



LIGATING THE VEIN BY OPEN OPERATION.

fore used to a good advantage in extracting large fees by the irregular physician. The technique of the operation is simplicity itself. The parts are made surgically clean and anæsthetized with cocaine; pick up the veins with the thumb and finger, and pass a small curved needle through the integument, and under the vein near the base of the penis. The needle is now transversed, entering at the exit, and passed above the vein to the point where it first entered, and ligated, and the two openings sealed with collodion. Both veins should be treated in this way. The object is to obliterate the veins, and cause congestion of the organ, the reaction of which will produce the necessary erection.

Some prefer the open operation as is illustrated here, as you have your work constantly before you as in the varicocele operation. This operation, and the use of the "pill that will," will restore this function, in a large majority of cases, and many physicians have the courage to charge a fee of $100 for this procedure, and the patients seem to believe they have received their money's worth, and thus their prayers are answered:

"Blessed are they of human race,
To whom the Lord has given grace
To hope, to learn to wish and pray,
When one little stitch will pave the way."

HYPERTROPHY OF THE PROSTATE.

From the age of forty to the decline of life enlargement of the prostate gland is of such frequent occurrence that it is often looked upon as a natural consequence, rather than a disease, and if our Creator has selected any one organ of the male sexual system to equalize or correspond to the suffering endured by women for the pro-creation of the race, he has concentrated his efforts in this gland, which is often referred to as analogous to the uterus of the female. This overgrowth of tissue is not only a constant menace during advanced years, but it often robs the patient of many years of his life, unless therapeutic measures are instituted for its relief or cure.

These patients will generally consult the physician under the erroneous idea that their kidneys or bladder is diseased. They will complain of difficulty in starting the urine; although there is a frequent desire to urinate, especially at night. Will also state that the stream and force is diminished, even to dribbling, and the bladder is unrelieved by his efforts. These symptoms, together with neuralgia pains in the penis and testicle, with a sensation of weight in pelvis, and a discharge of glairy mucous will reveal to you an enlarged prostate. To confirm the diagnosis, however, a digital

examination is made through the rectum, and the patient is requested to pass his urine in your presence to observe the force and volume of the stream.

The treatment of enlarged prostate will naturally be divided into palliative measures, for the immediate comfort of the patient, and those directed to produce permanent results. Hyperacidity of the urine, and irritation at the neck of the bladder may be relieved by Triticum, Repens, Pichi, Oil of Sandalwood, Buchu and other similar treatments. Hexamethylenamine, which is also sold at fancy prices, under the coined name of "Cystegen," is one of the best remedies, especially where there is decomposition of urine. With this remedy we receive all the benefits from formaldehyde in a convenient form to dispense.

In advanced cases the residual urine should be withdrawn, and the bladder washed occasionally ,to prevent decomposition. The passing of sounds will often afford temporary relief, by increasing the force and caliber of the stream.

Of the internal remedies, which have been given with a view of producing permanent results, Ergot, Saw. Palmetto and Galega perhaps are in the greatest favor. These, administered in combination, in the following formula, will produce better results than any medication to my knowledge:

℞ F. E. Ergot . . . . . 1 oz.
F. E. Saw Palmetto . . . . . 1 oz.
F. E. Galega . . . . . 2 oz.
Simple Elixor, q.s. . . . . 6 oz.
Sig.—A teaspoonful three or four times a day.

Although Ergot and Saw Palmetto have long been looked upon as favorite remedies for enlarged prostate, reinforcing these drugs with Galega is of a decided advantage, as this remedy has a remarkable influence in stimulating glandular tissue.

The trend of modern therapeutics has a tendency, however, to favor local medication, in the form of suppositories, applied through the rectum to the prostatic

area; and also the cataphoric application of drugs. A suppository which has rendered me much service is as follows:

℞	Thiosinamine	4 gr.
	S. E. Saw Palmetto	4 gr.
	S. E. Galega	1 gr.
	Cocoa-butter, q. s.	24 gr.

Apply through the rectum to the prostatic area before retiring.

The thiosinamine solution used to remove scar tissue, as advocated by Dr. Nieswanger, is also one of the most successful means of treatment at our disposal. These methods used independently, or in combination, will give relief, and apparently cure a large number of these obstinate cases.

In order that I may outline the method of using the combined treatment, I will cite the following case:

Mr. H.—aged 64, merchant, from subjective symptoms and digital examination, presented a typical case of prostatic hypertrophy, with most of the symptoms previously described, and was obliged to urinate several times during the night; he was directed to take a teaspoonful of the Galega compound, three times a day and a prostatic suppository was applied each night before retiring.

Every four days the patient visited the office for the cataphoric application of thiosinamine; the technique of its application was nearly the same as advocated by Dr. Nieswanger. An electrode, (shown in Fig. 1, page 295), was used, by using an applicator of galvanized iron, instead of copper wire. This applicator was loosely wound with absorbent cotton for about two and one-half inches, and saturated with the same thiosinamine solution, as is used for removing scar tissue, on page 247. The wire applicator is slipped into the hard rubber protective shield of the applicator. This was well lubricated, and passed to the prostatic area of the urethra, attached to the positive pole; the negative pole applied to the abdomen with the pad electrode. The

continuous current was gradually turned on, until it reached ten milliamperes, and the current allowed to flow from eight to ten minutes.

At the end of two weeks the patient would not be disturbed of his sleep, by the desire to urinate in the night, and in less than two months was discharged as cured.

CHRONIC CYSTITIS.

This form of inflammation of the bladder, frequently succeeds the acute disease and continues as a low inflammatory catarrhal process; taking on acute symptoms at times and again lapsing into the sub-acute state. This is especially so when accompanied with enlarged prostate. The following formula has been of much service to me.

℞	Hexamethylenamine	2 gr.
	Ext. Corn Silk	1 gr.
	Ext. Pichi	1 gr.
	Ext. Buchu	1 gr.
	Ext. Hydrangea	1 gr.
	Atrophine Sulph.	1.600 gr.

Dose: A tablet every three hours followed by a large glass of water.

This simple eclectic prescription has also given me excelent results:

℞	Cannabis Indica. (Lloyds)	1 dr.
	Collinsonia	2 dr.
	Gelsemium	½ dr.
	Aqua, q. s.	4 oz.

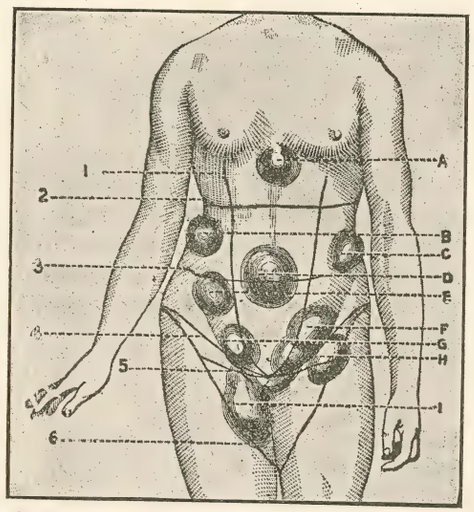
Sig.: Teaspoonful every hour for 12 hours then teaspoonful every four hours.

Hernia.

The treatment of hernia, up to the sixteenth century, constitutes the darkest pages in medical history. These unfortunate sufferers were objects of scorn and ridicule, denied access to society, and shut out from positions of honor and rank, while the strangulated were all abandoned to themselves to die. In the latter part of the seventeenth century the spring truss was invented, and from that advent, the mechanical and surgical treatment of hernia has gradually progressed, until we have at our command several successful means of curing this condition.

Hernia is another condition which has offered the physician an inviting field in which to specialize, owing to the frequency in which rupture is found. Several years ago Bryant gathered the statistics, and recorded 93,355 hernia cases, with a view of finding the relative percentage of the different forms of hernia; out of this number of cases there were 46,551 simple inguinal, to 7,452 femoral, without distinction of sex; of 30,575 double hernia, there were 28,503 inguinal and 1,972 femoral. The sum of his figures were 75,054 simple and double inguinal to 10,425 simple and double femoral, being one femoral to 7.10 inguinal. Malgaigue also gives statistics regarding the frequency of hernia in relation to population, and he estimates the proportion of the whole population of France, that is ruptured, to be one out of every thirteen males, and one out of every fifty-two females, or taking both sexes together, one out of every 20.5 individuals. The accompanying illustration shows the different forms of hernia and their location; some of these are so rare, however, that they are considered curiosities when presented.

Judging from these statistics, we can readily see why the treatment of rupture makes a remunerative specialty. There have never been any cutting in fees with rupture specialists. The price for such treatment is usually $100.00 for single and $150.00 to $200.00 for double hernia.



1. Epigastric Region. 2. Lumbar Region. 3. Umbilical Region. 4. Femoral Region. 5. Poupart's Ligament. 6. Scarpa's Triangle. A. Epigastric Hernia. B. Hypochondriacal Hernia. G. Lumbral Hernia. D. Umbilical Hernia. E. Ventral Hernia. F. Inguinal Hernia. G. Direct Inguinal Hernia. H. Crural Hernia. I. Femoral Hernia.

TREATMENT OF RUPTURE.

The treatment of rupture is divided into palliation of rupture, or supportive measures, and those which have a tendency to permanently close the canal. The former will depend upon a suitable truss, while the latter involves many different surgical procedures. We will only discuss, however, the three operations which are the most suitable and practical for the office specialist.

THE TRUSS.

It was the latter part of the seventeenth century that the first spring truss made its appearance, and although a very crude affair, compared with the modern truss, it offered great relief and improvement to the only means previously used of carrying and supporting their hernias in cloth bags.

The modern apparatus employed for the retention of hernia have been brought to great perfection in the past few years, and when it is considered how great is the number of ruptured persons in the community, together with the essential relief they receive from these appliances, they must be regarded as one of the most useful productions of modern surgical appliances. The ingenuity of American truss-makers has enabled them to produce apparatus far superior to those made in other parts of the world. The object to be obtained by the application of a truss is to close the opening through which the protrusion has taken place, by means of external pressure, and thereby, after reduction has been effected, to prevent a second descent. A well-made instrument should exert sufficient and uniform pressure to keep the hernia in place, without being easily displaced or causing undue discomfort. When the opening is not exactly closed by a properly fitting truss the omentum or intestine easily slips out, and the patient who wears such an apparatus is in a state of constant insecurity and danger, especially if he be engaged in laborious work. There are, unfortunately, many trusses in the market which do not fill these requisites and expose the patient to the risk of strangulation, by allowing a portion of the intestine to escape. It would indeed be better for the patient that no truss should be worn than such a makeshift. In the words of an eminent specialist, it may be stated that by early mechanical treatment a large percentage of hernias occurring under middle age can be cured. This is brought about by a slow process of thickening and gluing together of the sides of the opening through which the rupture occurred. It is advisable, however, that a truss be worn for at least one year after a cure has been effected.

In ordering, especial attention should be given to the following points: 1. The pad should be sufficiently large to cover the hernial opening and extend at least half an inch over the surrounding parts. It should be made of material which will not readily absorb moisture and thus become foul and irritating to the skin. It should also have the proper shape, according to the variety of hernia, and press uniformly upon the parts. 2. The spring should have sufficient elasticity to maintain the pad in position, without undue pressure or chafing.

The fitting of trusses is a much neglected art with physicians, and the safety and comfort of patients will greatly depend upon a perfect fitting appliance. This is doubly essential where this support is depended upon to make pressure during the Neoplastic process of the injection treatments. To have a well fitted truss, the following points should be observed. The patient should be able to place his body in any position which is usual, or may be unusual, in his vocation of life. He should lie on his back, and raise his body from the floor by having some one support his feet, cough violently and persistently, bend his body forward, and try to touch the floor; in fact, go through various bodily contortions, to be sure the truss holds firmly, and when you are satisfied of this, you are ready for operative procedures, to effect a permanent cure. The truss should be worn continuously during this treatment however, only removing the appliance during the sleeping hours, and in many cases it is well to continue its use during the night.

THE INJECTION TREATMENT.

The injection treatment of hernia is purely an American operation, and the credit of its discovery has been divided between Drs. Valpeau, Pancoast and Heaton. Dr. Warren, who has done much to perfect this

method, gives this honor, however, to Dr. Geo. Heaton, of Boston, who referred to his method as "tendonous irritation;" although Dr. Heaton's treatment created much inquiry in medical circles, he was inclined to keep it a secret; it was, therefore, used by only a few physicians, for a number of years. About fifteen years ago, this method was revised and adopted by many physicians, who are today using it, with splendid success, in all parts of the country. The fees attached to the operation have induced many physicians to commercialize the specialty by advertising.

The injection treatment for hernia is, without a a doubt, as successful as other operations for hernia, and is the most practical and convenient for the office specialist, as well as the patient, for it does not detain the patient from the daily duties of life, and the treatments may be given in the office, with little inconvenience. The two irritant methods, and the paraffin operation, are the only treatments which we will consider for office specialties.

HERNIA FLUIDS.

If there is any one thing the medical profession has been "stung" in securing the "right to use" it has been hernia fluids. Every promoter of a secret hernia cure has some special hernia fluid, which they attempt to extol as "superior to all others," the "only one which will stand the test," etc. These silver tongued medicine venders have reaped a rich harvest in fleecing money from the less worldly physician, by selling some simple fluid, with the right to use in certain localities, for a fancy price. The fact remains that these fluids are simple mixtures, which every physician has in his laboratory, and there is a large variety of medicines which will cure hernia, if properly injected. Valpeau and Pancost used tinct. of iodine. Roberts, of Alabama, used oil of cloves. Dr. Mason Warren used sulphuric ether. Heaton's injected fluid was a solution of quercus alba, etc.

The therapeutic mission of any hernia fluid is to create a mild irritation, without inflammation or abscess, and cause nature to throw out an abundance of sero-plastic lymph, which will create adhesions in the ruptured muscles, with complete occlusion of the hernial rings, if possible. Theoretically, there are many remedies which may be used for this purpose. Elaterium and cantharides would be the most active, but would require very minute quantities.

Alcohol alone has been advocated by many; the following solution has been a favorite in my hands which I call:

"X. L. C. R." HERNIA FLUID.

℞	Quinine and urea hydrochloride	5 gr.
	Resorcine	10 gr.
	Zinc sulphate	10 gr.
	Guaiacol	15 min.
	Thuja (Lloyd's tinct.)	1 dr.
	F. E. Quercus alba	2 dr.
	Glycerine	2 dr.
	Aqua, q.s.	1 oz.

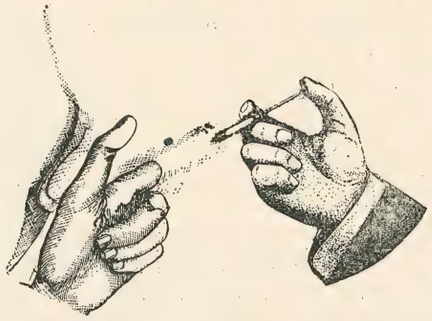
Dissolve the quinine and urea hydrochloride, the resorcine, and zinc sulphate in two drams of water; add the other ingredients, and sufficient water to make one ounce. This should stand a few days, and be shaken frequently; before using, filter through absorbent cotton until absolutely clear.

In resuming the above formula, the quinine and urea hydrochloride is added for its prolonged anæsthetic effect, and to obtund pain, during the irritant period. This is, also, greatly reinforced by guaiacol, with its irritant and antiseptic properties. Resorcine gives us all the advantages of carbolic acid, in a better form to use; zinc sulphate, quercus alba and thuja are incorporated for their mild irritant and astringent effects. The amount of this solution injected is from two to ten minims.

TECHNIQUE OF THE OPERATION.

Before any injections are made, you must be satisfied that the patient has a well fitting truss, and one that will support the hernia, under all circumstances; otherwise, you may be disappointed in the results, for this is the one essential thing in assuring success, for after the treatment is commenced, the rupture should never be allowed to protrude, even if the patient is required to wear the truss night and day.

After observing surgical cleanliness, of both instruments and operating area, the patient is placed upon his back, on a surgical table or chair, with legs flexed, and it is well to place a pillow under his hips, in order to elevate them, that the gravity of the intestines will be



METHOD OF INJECTING THE FLUID.

away from the canal, and not come in contact with the operation. Having previously filled the syringe, and regulated the set screw on the piston stem, for the amount of medicine desired for the treatment, the operator, if right handed, should take a position at the left side of the patient, the forefinger of the left hand should be inserted in the canal of the rupture invaginating the scrotum to the point of the internal opening; with the forefinger in the canal, and the thumb of the same hand, the tissues are lifted up so as to draw the tissues away from the cord, and thus avoid puncturing the contents. The needle is now inserted, on an angle

of about forty-five degrees, until the point of the needle reaches the finger; if the needle pricks the finger, it should be withdrawn back, until it avoids the scrotal walls; pressure should now be gently made upon the piston head to force part of the contents of the syringe into the tissues, then the point of the needle moved to another place, in order that we may deposit the fluid at several minute areas in the canal. One of the principal things to be remembered is to try and deposit the fluid as high up in the canal as possible, for if you should close the canal too far down it would prevent further treatments, and not allow you to close the openings at the point desired; after the injection is made, and the needle withdrawn, the parts should be gently massaged, in order to scatter the medicine and cover as large an area as possible. The truss is now replaced, so that it will make constant pressure over the injected area, and the patient allowed to resume his daily vocations.

This treatment will cause the patient but little inconvenience; he may complain of a slight stinging or burning sensation, due to the mild inflammatory action. This will subside in a few days, and at the end of four or five days, or a week, the operation should be repeated.

THE AMOUNT OF MEDICINE USED.

The amount of medicine used, and the length of time required to effect a cure will depend upon the extent of the hernia. It is always well to commence with the minimum amount of the fluid, and increase the quantity of each injection, according to the way the treatment agrees with the patient. I generally use only two or three minims, to commence with, and if it is borne well by the patient, increase the amount at subsequent treatments, always allowing sufficient time between each treatment for all inflammatory action to subside.

The length of time required to establish the desired results, from this treatment, will depend upon the con-

dition and age of the patient, and the extent of the hernia. The young and vigorous will respond to the treatment more rapidly than the feeble and aged. We can also obliterate a small opening with less difficulty than a large one.

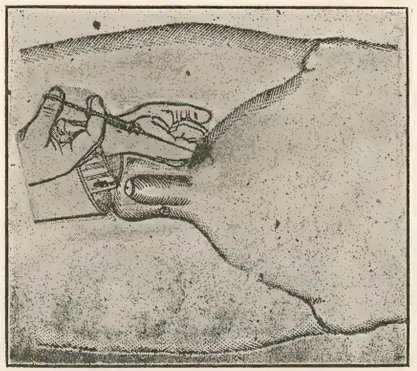
In order that you may observe the progress of the treatment, after the patient has received several injections, a test should be made to learn how the treatment is progressing. The first test should be made while the patient is upon the operating table. Place your hands over the hernia, and request the patient to cough gently; if the hernia has a tendency to protrude, the treatment should be continued, until you are satisfied that the tissues have been thoroughly united, and the patient can go through the different manoeuvres in your presence, as was done to test the truss, or are incident to his daily work. It is always well to have the patient wear the truss for some little time after you have discontinued the injections. This is especially so if the patient is doing heavy lifting. The truss may be entirely abandoned, however, in due time.

THE LANGDON OPERATION.

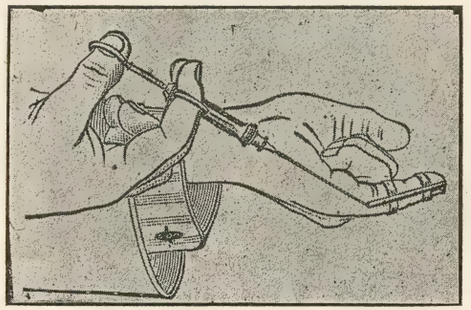
Dr. Langdon has devised a new method of accomplishing the same results, as previously described, using a different means and "route" to reach the inguinal canal; instead of inserting the needle through the abdominal tissues, he has ingeniously arranged a needle and canula which fits over the little finger, and by invaginating the scrotum with the little finger, with this attachment the needle is forced through the thin scrotal walls, and thus deposits the medicine within the inguinal canal, at a point nearest the internal opening. The advantages offered by this operation are as follows:

1st, it avoids any possible danger of puncturing the cord, as the needle is inserted longitudinal, instead of transverse to the cord; 2nd, you are more certain of access to the canal, as you only have to penetrate the thin scrotal walls. 3rd, by gently rotating the little

finger, after the needle has passed through the scrotal walls, you produce a slight scarification, which also has a tendency to reinforce the adhesions; (although the latter is not advised by Dr. Langdon, the writer has found this procedure quite an advantage, in both operations).



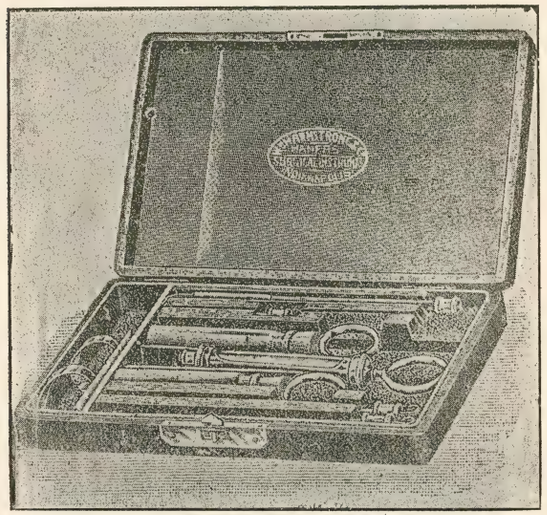
METHOD OF INJECTING THE FLUID IN LANGDON'S OPERATION.



CANULA ATTACHED TO LITTLE FINGER.

The technique of this operation is very simple; the little finger containing the canula, which adheres to the finger by two clasps, is inserted up the canal invaginating the scrotum the needle which has a blunt point with openings on each side is inserted through the canula up to, and through, the scrotal walls, and the

medicine deposited at different points by rotating the finger. The after treatment is the same as is given in the former injection method. Dr. Langdon states that he has used at least one hundred different ingredients and combinations in hernia fluids, and prefers fluid extract of quercus alba to other injection fluids. For a child, up to nine years of age, he reduces the fluid extarct by heat, in a test tube, to one half, and injects from two to ten minims, using the minimum amount to commence with, and increasing the quantity. From the age of nine to twenty, he reduces the F. E. quercus alba, by heat, to about four tenths and adds one tenth



LANGDON OPERATING SET.

grain of zinc sulphate to each minim used. In patients from twenty five to seventy five years of age, he uses the same solution as is used for children, and adds one half minim of beechwood creosote to each three minims of quercus alba.

THE PARAFFIN OPERATION.

Paraffin has been used in the treatment of hernia, with marked success, by many operators, and is often referred to as the "supportive treatment"; the object of the use of paraffin is to obliterate the opening and canal with this neutral substance, and thus prevent the escape of the intestine. It also supplements the truss, by making pressure between the abdominal walls. Paraffin, used in hernia, should have a melting point of about 120 degrees F., and the technique of the operation is the same as in other injection treatments. The paraffin syringe is filled with the paraffin, at the right melting point, and when cooled to a semi-solid state, the finger of the left hand is inserted up the inguinal canal, for a guide, and the needle is forced through the tissues to the point where the deposit is desired; the assistant operating the paraffin syringe, while the operator directs the deposit of paraffin, with the index finger of the left hand in the canal, and the right hand attempts to mold it into place. Of course, we cannot mold and manipulate the paraffin, in hernia operations, as we can in saddle back nose, and other operations, as we do not have as free access to the deposit. We can do much, however, in directing the deposit.

The effect of the paraffin in this operation has a double action; it not only acts as a support, to prevent the protrusion of the intestine, but also as a mild irritant, for while the paraffin is becoming incapsulated, there is an exudation of plastic material, which creates adhesions, and strengthens the resistance of the abdominal walls. Many operators do not advise the use of the truss after the operation, but the best success has been obtained where the truss is worn, after the operation, until all trace of inflammatory reaction has subsided; then the results of the operation are tested, the same as with the irritant injection treatment.

The paraffin treatment for hernia is slow in becoming popular, as a general operative measure, and at

present, is only advocated and used by a few, who are maintaining equal results with other hernia operators, and fattening their purses through their exclusive field, and secretive methods, but we feel safe to say that this operation, in the near future, will receive the credit it justly deserves from the regular practitioner.

By adopting any one of the foregoing methods the general practitioner will once more stay the hand of the surgeon, and prevent his hernia patients from drifting into the hands of the advertising hernia specialists, and retain both the glory and fees connected with the operation.

To refute the charges made against the injection treatment for hernia, Dr. C. F. Souder, of Philadelphia, states: :"I can only speak from personal experience; I have given nearly 16,000 such treatments without a death, abscess, septic infection, or atrophy of the testicle. The treatment can be given from birth to old age."

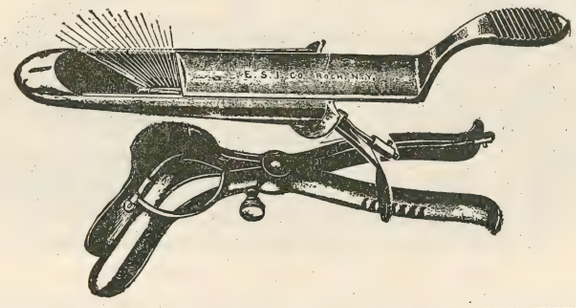
Such assurance from a man with as wide experience as Dr. Souder, should convince any physician regarding the reliability of the injection treatment, and although it is not indicated in all hernias, when it can be used it is thoroughly reliable, scientific and successful as any method in present use. When an astringent as well as an irritant is needed, Dr. Souder uses the following in all forms of hernia:

℞	Guaiacol	3 min.
	Creosote	3 min.
	Zinc Sulphate	3 gr.
	Fl. Ext. hamamelis	30 min.
	Glycerine	30 min.
	Alcohol	15 min.

Inject two or three minims when reaction disappears.

Rectal Diseases.

Of the three lower orifices of the body the rectum is doomed to share in its percentage of diseases and disorders, and there are very few people indeed, who pass through the span of life without suffering, at some period, with some derangement in this part of their anatomy. These diseases are particularly suitable to incorporate in an office practice, as a large percentage may be treated at the office, without detaining the patient from his daily duties. I will, therefore, only outline the treatment of such diseases of this organ as may be successfully operated upon, and treated at the office, and allow the more voluminous text books to discuss the theory and technique of the major operation,

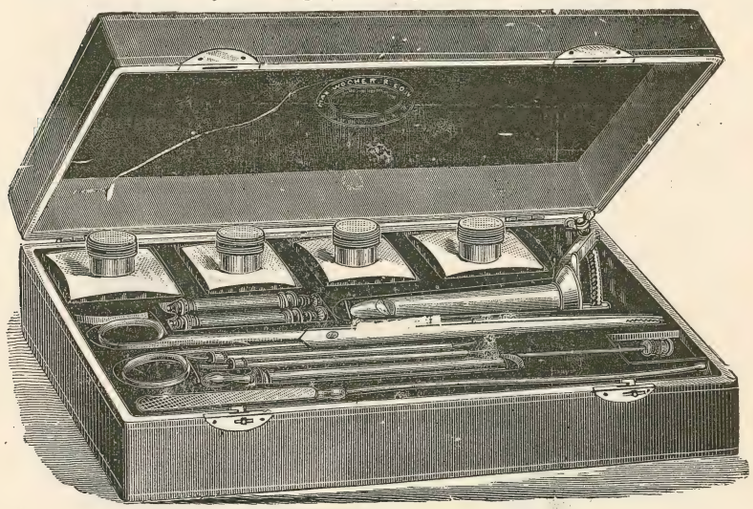


BRINKERHOFF'S AND PRATT'S BIVALVE SPECULUMS WITH ELECTRIC LIGHT ATTACHMENTS.

PREPARATORY TREATMENT.

Patients who consult the physician at his office, regarding rectal diseases, generally possess sufficient pride regarding personal cleanliness to thoroughly

bathe the parts before submitting to an examination; this is all that is necessary for a superficial examination, to determine the nature of the disease, but before conducting a thorough examination, it is best to detain the examination for one day, and instruct the patient to take light diet, and a thorough enema, and bathe before exploring the rectal walls. Of course this may be done at the office, if necessary. Your examination rooms should be provided with good light, and if you examine and treat this class of patients during the evening hours, I have always found it a great advantage to use a small electric light bulb, attached to the speculum, as is illustrated here; this is of great assistance either day or night, for general examination and



THE OFFICE SPECIALISTS OPERATING SET.

This makes a very convenient set for the Rectal Specialist. It contains four metal screw-top bottles for holding medicines, two syringes, one Brinkerhoff speculum, one rectal polypus or dressing forceps, one suppositor for ointments, one silver probe-pointed canula, one guarded and one plain hypodermic needle.

operative work. I have provided myself with four speculums: Pratt's bivalve and Sigmoid, Sim's fenestrated and Brinkerhoff's speculum.

I also have the Physician's Supply Co.'s rectal case,

illustrated here, which contains nearly all the instruments for treating rectal diseases, and will be found indispensable to any office specialist.

LOCAL ANAESTHESIA.

After determining the nature of the disease you have to deal with, and suggest an operation, about the first question the patient will ask you is, "must I take chloroform or ether"? and what a world of significance that little word "no" has, as it comes from the lips of the physician, for once more we have conquered pain in the treatment of these painful afflictions, and our old friend Quinine and Urea hydrochloride is monarch of the territory it surveys.

Dr. Gant was the first to abandon cocaine and other toxic anaesthetics, and prove that local anaesthesia could be produced by infiltrating the operative area with sterile water; by reinforcing his method with the addition of a one half to a one per cent quinine and Urea hydrochloride, we can produce a perfect anaesthesia for nearly all rectal operations.

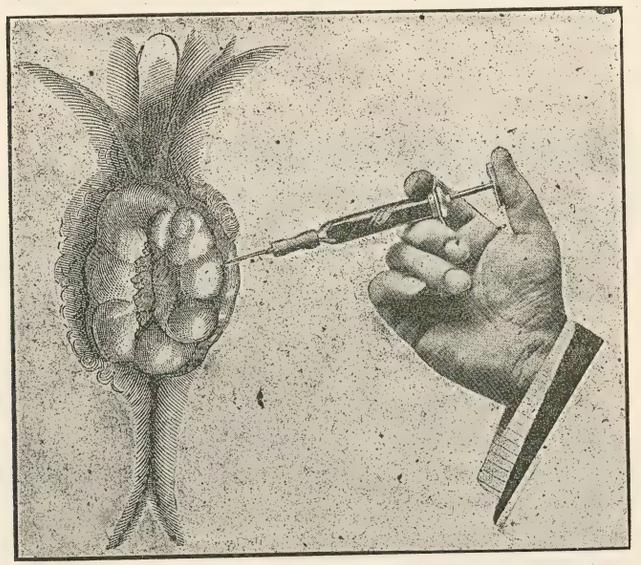
The technique for producing anaesthesia will depend upon the extent of the operation. In the operation for a simple fissure, it is only necessary to infiltrate the tissues under the surface; where complete anaesthesia of the rectal area is desired, the entire rectal walls should be completely anaesthetized; for this purpose I use the following solution:

Quinine and Urea hydrochloride.....5 gr.
Aqua dis. .....1 oz.

Sterilize the water by boiling, and when nearly cool, add the quinine and urea hydrochloride.

When we wish to make an incision through the skin and subcutaneous tissue, as in fistula, colostomy for hemorrhoidal operations, etc., the following technique will completely anaesthetize the operative area: Commence by pinching up a fold of skin at the line of incision and press firmly with the thumb and forefinger. This will lessen the pain caused by the needle,

which is now inserted between the layers of the skin, and a few drops of the anaesthetic slowly injected; the needle is now inserted further and more anaesthetic used. This is followed until the entire operative area is distended, to resemble a water blister. Care should be exercised not to inject through the skin in this treatment, as it is only intended to obtund the skin. When you have anaesthetized the external surface which may require about one syringe full of the



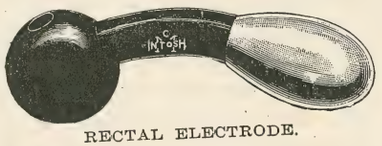
METHOD OF INJECTING THE LOCAL ANAESTHETIC.

anaesthetic, the deeper structures may be anaesthetized by injecting directly into the tissues, without further pain; therefore, to completely anaesthetize the entire rectal area, at least four more injections are made. These injections should be made external to the sphincter muscles, thus avoiding the diseased area and large blood vessels of the rectum. I usually divide the surface into four punctures: one at the top and bottom of the median line, and one at each side, as is illustrated here. During these injections the index finger of the left hand is inserted into the rectum, as a guide to the needle, and to prevent puncturing the inside walls, as the needle is inserted. Pressure is made upon the piston to deposit the anaesthetic at different points, and after the needle is withdrawn, the injected area is massaged with the finger within the rectum. One hypodermic syringe full of the anaesthetic, injected at these four points, as a rule, will produce complete anaesthesia; if you should fail, more of the anaesthetic should be used. The sphincter may now be dilated by the use of the mechanical vibrator, using vibratode P. and the lateral stroke, or with the speculum, and we are prepared for nearly any operation upon the anus or rectum.

CONSTIPATION.

While constipation is the primary cause of a large number of rectal diseases, it is also a great menace by retarding any curative measures we may adopt for their relief; therefore, when this condition exists in connection with rectal disorders, our first step towards success will be to restore the dormant bowels to new life and activity. The causes of constipation are manifold; it may be hereditary, or due to indigestion, etc., but the most frequent cause is simple neglect. Many people are so little concerned regarding their health that they will not find time to answer nature's call, and by continuing this neglect, in due time they not only find themselves afflicted with rectal disease, but often many other bodily ailments, as the result of absorbing toxic influences, which should be eliminated each day; therefore, the physician's first step towards success, in treating diseases of the rectum, is to "educate his patients to educate their bowels," and thus remove the cause. This, in many cases, is all that is required to effect a cure, not only of rectal diseases, but many other constitutional ailments. This condition is of such frequent occurrence that it requires more than passing notice.

There is much said in medical literature regarding "intestinal atony." I am inclined to believe, however, that the "atony" is located in the rectum more frequently than in the upper bowel, for direct treatment to the rectum will result in a permanent cure far more rapidly than when medication is directed otherwise. Retention of faeces in the rectum results in over distention, and thus weakens the walls by permanent dilation. This "plug" of faecal matter is particularly conducive to congesting the pelvic organs, by obstructing the return circulation, thus producing varicose veins or hemorrhoids, as well as displacements of the female organs, and other pelvic and constitutional disorders. Of all the treatments devised for the cure of chronic constipation, those directed to the rectum proper have been the most successful. Simple dilation of the sphincter, with graded rectal dilators, will give excellent results, as far as overcoming the tension of



RECTAL ELECTRODE.

the muscles is concerned, but this is not all that is required. Above these muscles we have a large pouch, formed by broken down muscular fibers, due to the continuous expansion of the rectal walls. This is the point where treatment is directed, with the best results for "atony," and the best means of restoring tonicity to these walls is by mechanical vibration and electricity.

We have already referred to vibrotherapy for constipation on page 91, to which you are referred.

To overcome the atony of the muscular walls of the rectum, electricity excels every other means. The modified Morton wave current described by Dr. Rice as follows: "The patient sits upon a chair on an isolated platform; ground the negative side of the

machine to a water pipe or gas fixture. Connect to the latter the medium-sized condensers, and close the switch; the short rectal electrode, illustrated above, well lubricated and inserted. The conducting cord is connected to the top of the condensor, on the positive side of the machine; the prime conductors are closed, and the machine started slowly, gradually separating the former until the patient feels the current at the side of the electrode; this current is allowed to pass about two minutes, and then increase the length of the spark gap to from four to six inches.

If the prime conductors are separated gradually, there will be neither pain nor discomfort during or after the treatment. This treatment should be given for fifteen minutes; if it is followed by mechanical vibration, ten minutes is sufficient. These treatments should be given daily, at first, and lengthen the intervals, as the treatment progresses.

Many hygienic and physical measures can be adopted with excellent results. Patients who are constipated should drink plenty of water, two or three glasses of water before breakfast, and at intervals during the day, with regular hours to go to stool, (preferably after breakfast), with plenty of exercise, for those of sedentary habits, will relieve many cases. Our Materia Medica is congested with remedies advocated for constipation, and nostrum venders continue to herald their literature for candy carthartics and laxatives, until today we have thousands of pronounced victims of the pill habit. Drugs should be used as sparingly as possible, although they may be used to a good advantage in commencing treatment. Of the entire list, there are only three worthy of much praise for chronic constipation, although many may be given for temporary relief.

Fl. ext. Cascara Sagrada heads the list, and by reinforcing this remedy with nux vomica and phenolphthalein, we may obtain permanent results, if judiciously used, as follows:

℞ Phenolphtalein . . . . . 1 dr.
Fl. ext. nux vomica . . . . . 1 dr.
Fl. ext. cascara sagrada . . . . . 1 oz.
Simple elixir q. s. . . . . 4 oz.
Mix. Sig. A teaspoonful three times a day.

I supply the patient with the above mixture, and another eight-ounce bottle of simple elixir, and each day, as he takes the three drams from the four-ounce bottle, he refills it with the simple elixir; in this way, it is gradually reducing the amount of medicine used, and by the time it is exhausted, he is taking very little medicine, and is relieved from constipation. By following this rule, and instructing the patient regarding a regular hour for stool, diet, drinking water, exercise, etc., we can cure the majority of cases. I never pronounce these cases cured, however, until they can tell the time of day by nature's calling them to stool. They have thus systematized their habits.

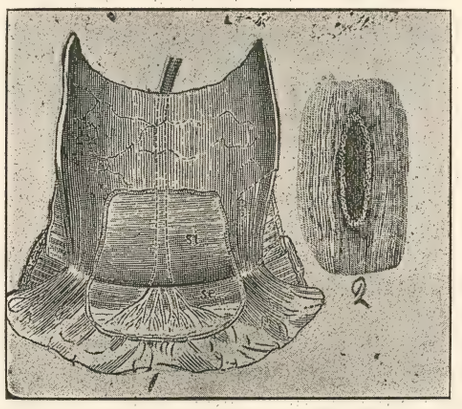


FIG. 1. DIAGRAM OF NERVE SUPPLY OF ANUS.
FIG. 2. FISSURE OF THE ANUS UNFOLDED.

FISSURE.

This may be defined as "the biggest little disease" of the rectum, or perhaps the entire body; for there are few diseases involving so little space, which create

such intense pain and gravely reflex disturbances as this innocent looking abrasion, at the muco-cutaneous border of the anal orifice. By referring to the minute anatomy, (see accompanying illustration), we find this area more

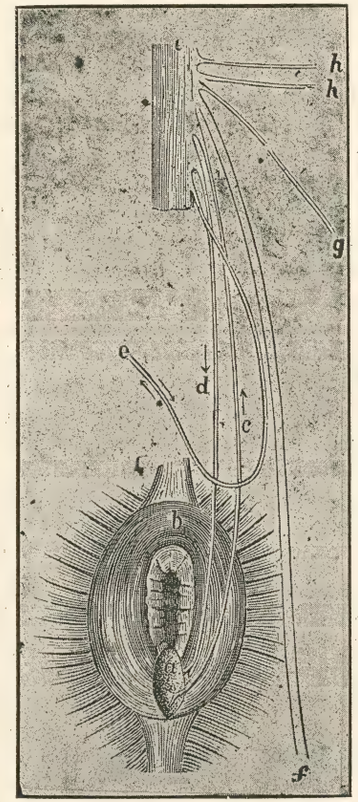


DIAGRAM OF NERVE TRUNKS WHICH ARE CONCERNED IN PRODUCING REFLEX SPASM.
a. Fissure. c. Sensory nerve. d. Motor nerve. e. Pudic. f. Ischiadic. g. Ilio-lumbar. h. h. Lumbar. i. Spinal center.

than abundantly supplied with nerve fibers, which are laid bare by this rupture of the mucous membrane, which are more sensitive to touch than the eye.

Owing to the pain and discomfort endured by the

patient, the treatment of fissure has always demanded a large fee for its relief, by the unprincipled rectal specialists, who would greatly magnify the seriousness of the disease for the purpose of depleting their victims' purse. This is one of those little diseases where pain predominates, and "surgical operation is the only means of relief," and the patient is willing to pay almost any price to be relieved of his suffering. The fact is, the treatment of fissure is as simple as the disease itself. The first thing to accomplish is to relieve constipation, which is present in the majority of cases. Many of the superficial fissures may be cured by keeping the bowels in a semi-solid state, and applying pure carbolic acid to the full length of the fissure. Complete dilatation of the sphincter muscles, to the full extent of a Pratt's bivalve speculum, or the older way of inserting the thumbs, of both hands, into the rectum, and stretching the muscles to their full extent will produce a temporary paralysis and displace the exposed nerve fibers. This, followed with scarification of the open surface, and the application of aristol, or other antiseptic dressings, will give immediate relief, and cure nearly every case.

A popular, and what may be called "up-to-date" method, is by producing complete local anaesthesia with quinine and urea hydrochloride, and dilating the sphincter by pressing vibratode P., (page 85), well against the anus, using the lateral stroke until complete relaxations exist; the ulcer may now be dissected away, and the edges united with the required number of sutures. The bowels should be tied up, for a few days, in order to permit healing, and the after treatment directed to keep the bowels open.

ABSCESS AND FISTULA.

Rectal abscess and fistula are of the most common occurrence; in fact, some authors have given this the first rank in rectal diseases, believing it to be more common than hemorrhoids. These diseases are so

closely related that it would be almost impossible to discuss them separately, as fistula is the result of abscess, in ninety per cent of all cases, and only a few consult the physician until the fistula has formed, and when once formed it has little tendency to heal spontaneously. Where an abscess has formed, there is only one treatment, which is to make an incision, and remove the pus, and treat as an abscess in other parts of the body; if treated early, this may avoid the formation of fistula by rapidly healing. The majority of cases, however, present themselves after the fistula has formed. There is little or no pain, and the chief annoyance to the patient is the continual discharge from the unhealed sinus.

DIFFERENT FORMS OF FISTULA.

Fistula has been classified as complete when it has a sinus leading from the rectum to the outer skin, (see accompanying illustration) (1), internal, incomplete when the opening leads to the rectum, (2) external, incomplete when the opening is to the outside surface alone, (3) and the complex, or horseshoe variety, which is complicated with one internal opening, with two or

more external sinuses, (4). The first step towards treatment is to determine the character of the fistula we have to deal with; with the index finger in the rectum, and a silver probe, it is not a difficult thing to learn the nature of the fistula. Colored injections have been made in the external openings to determine the location of the internal exit. The use of the speculum or a well trained finger will, however, locate the papillae, which opens to the sinus.

NON-OPERATIVE TREATMENT.

To cure fistula, without the use of the knife, is the method advertised by the local, irregular and itinerant specialists, and is the method preferred by most patients. "No knife and no detention from business" is the catchy caption; words which draw patients to their offices. It is well, therefore, to become familiar with their "tricks."

There are two principal things which prevent a fistula from healing spontaneously; the first, is the tendency of the external opening to heal, and prevent free drainage of septic fluids, and second the inlet of septic material through the internal opening. Overcoming these two obstacles has been the principal reason why these physicians have been so successful with non-surgical treatments.

Away back in the days of the Senior Brinkerhoff, when skilled rectal surgeons were few, and "quack pile doctors" were predominating, we find these rules most closely observed, and they have done much to favor the present non-surgical treatment of today. It will, therefore, be seen that absolute cleanliness, asepsis, and treatment to destroy old tissue, and promote the development of new granulations, is the method directed towards results; although the medication may improve as chemistry advances.

TECHNIQUE OF OPERATION.

The patient should be prepared as for any rectal operation, and the nature of the fistula determined. A local anaesthesia is used, if desired, in sensitive patients, as the use of quinine and urea hydrochloride will avoid much of the post operative distress.

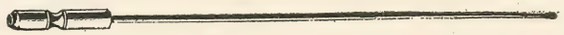
The external opening is dilated with a small flexible bougie, to provide free drainage, and extent of the fistula outlined. A medium sized syringe, with flexible silver probe, pointed canula, page 364, is filled with peroxide of hydrogen, and injected deep into the sinus, and every effort made to reach its most remote parts by massage; after the froth has escaped, the sinus should be irrigated with plain water, and a saturated solution of nitrate of silver is injected in the same manner, completely covering the abscessed walls. Great care should be exercised that the solution is injected into the cavity, and not into the tissues; therefore, a pointed needle should be avoided. In order to prevent the escape of the fluid into the rectum, where it may be absorbed and produce destructive effects to the walls, and constitutional symptoms, the index finger, covered with the rubber shield, (to prevent staining the fingers), is inserted into the rectum, and pressed firmly against the internal opening. The external opening is protected by lubricating the skin with vaseline. The solution of silver should be allowed to remain a short time, and the parts massaged to reach all sections of the tract. After the silver solution escapes, it is sometimes well to dilate the external opening with a flexible bougie, to provide free drainage. In a few days, the diseased, living tissue, will slough away, and be replaced by healthy granulations. This may completely obliterate the canal. If it does not, the parts still left open may be treated in the same manner, in a few days, until the operation is successful. The original "Brinkerhoff System" used the following solution, instead of silver nitrate, known as "Ulcer Specific."

℞ Dis. ext. Hamamelis . . . . . 5 dr.
Liq. fer. subsulph . . . . . 1 dr.
Acid carbol, cryst . . . . . 2 gr.
Glycerine . . . . . 2 dr.

Dr. Mathews makes this method more energetic by dilating the sinus with a laminaria tent, and then inserts an Otis urethrotome, and both dilates and scarifies the interior of the sinus, to promote healing. Scarlet red medicinal is the latest remedy advocated for the injection treatment of fistula.

METALLIC CATAPHORESIS TREATMENT.

This is also a very successful treatment, and is particularly suitable for office practice, as it does not detain the patient from his daily duties. A probe pointed copper wire electrode, attached to the positive pole, is inserted into the fistula track, so as to cover the entire surface, as near as possible. The index finger is inserted into the rectum, as a guide and to prevent the electrode to penetrate the internal opening, and contact with the opposite wall of the rectum. The



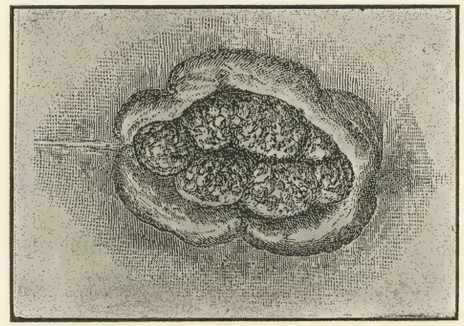
PROBE POINTED COPPER WIRE ELECTRODE.

negative pole is attached to the pad electrode, and placed upon the back or abdomen, and from five to twenty milliamperes used, according to the extent of the fistula covered, and the diameter of the electrode. The current is used for about ten minutes; the electrode is now removed with some force, as it has become attached to the walls of the diseased tissue, which is removed with the electrode, leaving in the fistula track, healthy tissue, which will unite and close the canal. There are many surgical procedures for the treatment of fistula, with which most physicians are familiar; we will, therefore, not discuss them here.

HEMORRHOIDS.

Hemorrhoids have been classified as internal and external. The internal are those which originate above the verge of the anus and the external below; the internal being subdivided into venous and capillary, and the external into thrombotic and tags of skin, or they may present a complicated condition of both internal and external, as is illustrated here.

The character of hemorrhoids may be easily diagnosed by having the patient strain as at stool. A large percentage of hemorrhoids may be treated and cured at the office, by the various methods of treatment we have



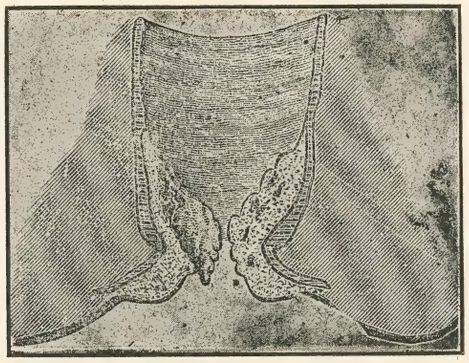
INTERNAL AND EXTERNAL HEMORRHOIDS.

at our disposal. The most unfavorable variety are those situated high up in the rectum and difficult to reach. These, however, may be treated to reduce the inflammation, and operated upon later, since we have such absolute control over pain by the use of local anaesthetics, there are very few cases indeed which can not be restored to health by office treatments.

The treatment of hemorrhoids is directed to palliative measures, for the temporary relief of the patient, and those which permanently destroy the tumors. Hemorrhoids, like other diseases, have a tendency to cure spontaneously, or at least subside, so as to cause the patient little or no inconvenience. The main ob-

stacle to overcome is constipation, and the use of cathartics, especially aloes, which more than any other remedy congests this organ.

Suppositories for the relief and cure of hemorrhoids constitutes one of the oldest treatments, and much good may be accomplished from this medication. The following is of exceptional value in mild cases, and will give the patient immediate relief, providing we relieve the constipation and straining at stool. Each suppository contains:



SECTIONAL VIEW OF EXTERNAL AND INTERNAL HEMORRHOIDS.

℞	Quinine and Urea Hydrochloride . .	1 gr.
	Ext. Belladonna	½ gr.
	Ext. Hamamelis	1 gr.
	Bismuth sub. nit.	2 gr.
	Tannic acid	½ gr.
	Cocoa butter	20 gr.

Sig. Apply a suppository into the rectal cavity two or three times a day.

In resuming the therapeutic value of the above formula, the Quinine and Urea Hydrochloride and Belladonna are given for their obtundant and anodyne effects. The Hamamelis for its specific influence upon the venous blood vessels, the bismuth and tannic acid

for their astringent effect to strengthen the walls of the rectum. I have often been surprised at the expressions of gratitude received from patients, who have used this suppository, but in order to obtain the best results full doses from five to ten grains of phenolphthelein should be given, if the patient is constipated, to clear the bowel of impacted faeces, and allow the bowels to move with the least possible straining. In fact, they should be so loose as to run off without straining at all, and thus avoid the protrusion of the pile tumors.

THE INJECTION TREATMENT FOR HEMORRHOIDS.

This is another method of treatment which was ushered into the healing art under the clouds of mystery, and was formerly considered one of the "tricks" in the Medical World. It was slow in being kindly accepted by the regular physician, when first introduced, but the venders of the "system" were successful in placing this method in the hands of the less skillful physicians, until the entire country was swarmed with itinerant "Pile Doctors," who were puncturing the piles and purses of patients by the hundreds. Then the Medical press commenced its campaign regarding the bad results from the treatment.

The fact is, the injection treatment for hemorrhoids is not the dangerous operation it was pictured to be, and the articles published, by jealous physicians, regarding deaths from emboli, carbolic acid poisoning, etc., have very little weight when this method is used by skilled hands. Unfortunately, the "systems" were sold to many ignorant men, who were not physicians, and entirely destitute of a sound Medical knowledge, yet in their hands, the success obtained was remarkable, under the circumstances.

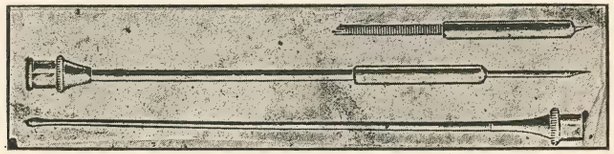
TECHNIQUE OF THE OPERATION.

Prepare the patient as previously described, and he may be placed upon his side or back, as is most convenient for the operator; by requesting the patient to

strain, as if at stool, he may force the tumors outside the sphincter muscles; if he is unable to do so, an enema of warm water may be given at the office, which will assist in forcing the hemorrhoids in full view of the operator. The tumors should now be bathed, and vaseline applied to the tumors and mucous membrane, to prevent any injury. If the injection fluid should overflow, and come in contact with the external surface, the syringe having a guarded needle, (see illustration), is filled with the following solution:

℞ Carbolic acid . . . . . 1 dr.
Glycerine . . . . . 1 dr.

The needle is now forced into the border of the tumor at its longitudinal diameter to the opposite side, being careful not to puncture the opposite wall, which is previously regulated by the guard on the needle, and as the needle is withdrawn, pressure is made upon the



GUARDED NEEDLE AND CANULA.

piston to deposit the medicine. The amount of medicine used will depend upon the size of the tumors, and should be regulated by the set screw on the piston stem before inserting the needle. This will vary from one to two minims for small, and four or five for the larger tumors. It is always best to treat the small tumors first, as they are more accessible than they are later, after the large tumors have been destroyed.

After the injection is made, and the cauterization is completed, it will be observed that the tumors are of a pale bluish color, which indicates that the cauterization has been successful. They should be lubricated with vaseline, and placed within the bowel. If it is impossible to force the tumors outside the sphincter muscle by straining, and for the tumors higher up in the bowel,

the Brinkerhoff speculum is used to throw them in view.

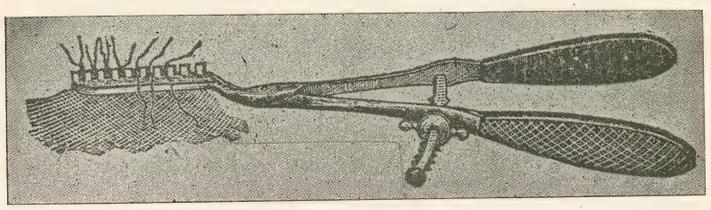
The bowels should be tied up for a few days with morphine, and when they should move a full dose of phenolphthalein should be given, to produce a profuse watery stool, without straining. Never inject over two small, or one large tumor at each treatment, and at the end of ten days or two weeks, continue the operation at these periods, until they are all eradicated.

In summing up this operation, it might be compared with the injection treatment for hernia; they have both been more or less condemned by surgeons who wish to "knife" every case they come in contact with, yet the physicians who practice these methods are optimistic to their attack, and silently, yet successfully, cure their patients, and reap the remunerative rewards attached to the operation. It is rather amusing to read the articles of some noted surgeon, condemning this treatment as an unscientific and barbarous procedure, and later, hear them boast of the results they have accomplished by pinching these delicate tissues in a clamp, and searing them with a hot iron; it is true that both methods destroy the tumors by cauterization; one can be done at the physician's office, with little or no pain, the other requires profound anaesthesia: but, really, which method belongs to the barbaric ages of antiquity?

By observing the following notes regarding this treatment, you will be rewarded with success. If the piles or rectum are inflamed, reduce the inflammation by the use of the suppository, and other treatments previously given. Always see that the colon is unloaded before operating. Never use less than a 50 per-cent carbolic acid solution, for the stronger the solution, the more complete the cauterization; inject under the tumor, and not into it, and do not try to accomplish too much at one treatment. One or two tumors is enough to treat at one time, and be sure that all soreness has disappeared from the preceding operation before continuing further treatment.

CLAMP AND SUTURE OPERATION.

Where surgery is resorted to, the best operation for office treatment consists of the clamp and suture. This is conducted by thoroughly anaesthetizing the operative area with Quinine and Urea Hydrochloride, as previously described. The sphincters are thoroughly dilated, either by mechanical vibration or the speculum, and the tumors brought to view; the parts are thoroughly bathed, and made aseptic as possible. The notched clamp is clasped about the tumor, and the hemorrhoids cut off, at the border of the clamp; the sutures are now made between the notches, uniting the borders of the wound with catgut. This gives us a clean surgical operation, which is nearly bloodless and painless, and we have so completely closed the wound as to prevent post operative hemorrhage; the sutures are absorbed in due time, and will cause very little detention, if any, from business. This operation is applicable to all forms of internal or external piles, or the mixed variety.



CLAMP AND SUTURES APPLIED.

EXTERNAL HEMORRHOIDS.

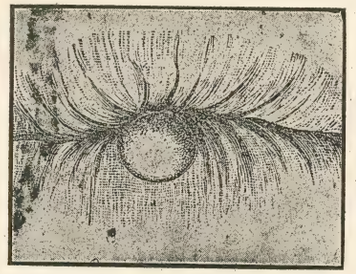
Thrombotic hemorrhoids are caused by a rupture of a vein, and the extravasation of blood, which forms into a clot of a bluish color, and extremely painful. This may be clasped in the clamp, as described above, or if accessible, this is not necessary. A fine incision is made, and the clot rolled out, and the edges united with sutures. Tags of skin may sometimes be present, in large quantities, either as the result of thrombotic piles, or irritation from constipation and straining at stool. These small tumors may be injected with cocaine, and

clipped off with scissors; if large, a suture applied to prevent bleeding.

PRURITIS ANI.

This is another one of those, apparently little, diseases which annoy the patient to the border of insanity, through the irritation it creates, the loss of sleep, worry, etc.

A few years ago, I was consulted by a patient who had been afflicted with this disease, for about two years; he stated: "Doctor, I believe I have bugs around the rectum." He described a typical case of Pruritis, and I determined to treat his case purely from a parasitic origin. I therefore, gave him a box of blue ointment, reduced one-half with vaseline, and directed him to apply it three or four times a day; he used the contents of the box; and although he has been constantly under my observation, the disease has never returned, to my knowledge. This is only one case in hundreds, where this simple treatment has proven effective in relieving this condition. Whether or not this disease is caused by a parasite, I am satisfied that treatment directed to



THROMBOTIC HEMORRHOID.

this cause is more satisfactory than other methods of treatment. In extreme cases, I use the ecorchement treatment, as described on page 111, which thoroughly removes all the old skin, which has become like parchment, and involves the nerve filaments through continuous irritation. This will also prove very effective in stubborn cases.

Alcoholism and the Drug Habits.

Once more we are confronted with this great question: What can we do to reclaim the drunkard and drug habituate? There are only two ways of solving the great problem. The first is to absolutely prohibit the manufacture and sale of intoxicating liquors and habit-forming drugs; then we may tell that mythful fellow, the Devil, to bank his fires, and turn Hell into a cold storage plant, for his domicile will be as destitute as a spider's web in January. The great good accomplished by prohibitory laws has been demonstrated in many states, yet until these laws become universal, and involve the entire union, the drunkard and habituate are like "The poor ye have always with ye," and our second and only recourse is Medical assistance in the hands of physicians, to restore these shattered inebriates to normal manhood, by a combination of psychic, moral and medical measures.

The treatment of alcoholism and the drug habits was ushered into popularity under the limelights of "mysterious medicine," and for a number of years the so-called "gold cure Institutes" have reaped a golden harvest for their treatment of these unfortunate victims. In my former publication, the "Secrets of Specialists," I endeavored to expose the methods used at many of these Institutes, but following the trend of American custom in attempting to accomplish ten days labor in twenty-four hours time, has been adopted at several Institutes, and now we have the Gatlin three-day cure for alcoholism and the Swan three-day cure for drug habits, etc. It is, therefore, well to discuss some of the modern methods used in treatment of these conditions.

ALCOHOLISM.

There has been much discussion in Medical literature whether or not alcoholism is a habit or disease. I am inclined to think it is both, according to the stage and length of time alcohol has been consumed by the patient. I do not believe that any man was born with a natural appetite for liquor, and the first taste of liquor, except wine and cordials, was anything but palatable to the taste, but the rum shops, or "hell holes," (would be a better name for the places they choose to call cafes), with their glittering lights, music, songs and dances, from half crazy men, offer just enough inducement to awaken the young American's curiosity, which finally develops a taste for liquor, and the habit of drinking. When the system becomes saturated with the poison its secondary effect is to create disease, by shattering nerve force, resulting in paralysis, petrifying tissues, producing sclerosis of the liver and other organs, and thus producing a chain of bodily ailments, as a direct cause of alcoholism.

There are three distinct stages, or classes, of alcohol habituates; the first, where there is no particular desire or appetite for liquor, but the victim will perhaps lick his wife, or meet with business disappointments, and celebrate the occasion by becoming intoxicated. These are the most difficult cases to treat successfully, as there is no foundation for treatment. The second class are those who consume a certain amount of liquor each day until it, apparently, becomes a food to them, and they keep their shattered nerves "steamed up" continuously, without any noticeable effect. The third class wish to consume all the liquor to which they have access, and are really whiskey degenerates. The two latter classes are the ones where Medical treatment will derive its greatest benefits. We will, therefore, not discuss these classifications as disease, but outline some of the latest methods of treatment, and their indications for specific results.

THE TREATMENT.

It is after a debauch, a periodical or prolonged spree, that the drunkard generally presents himself for Medical assistance, and it is at this period he is most easily influenced to pursue a prolonged course of treatment, with a view of permanently abandoning his habits; he is, at this time, disgusted with himself and the world, and the situation of affairs is well described by Riley in the following lines:

"When a man ain't got a cent an' he's feelin' kind o' blue,
And the clouds hang dark and heavy an' won't let the sunshine through,
It's a great thing, O my brethren, for a fellow just to lay
His hand upon your shoulder in a friendly sort o' way.

It makes a man feel curious; it makes the tear drops start,
An' you sort o' feel a flutter in the region o' your heart,
You can't look up an' meet his eye; you don't know what to say,
When his hand is on your shoulder in a friendly sort o' way.

Oh, the world's a curious compound with its honey and its gall,
With its care and bitter crosses, but a good world after all.
An' a good God must have made it—leastways that's what I say
When a hands rests on your shoulder in a friendly sort o' way.

It is at this psychological period that the hand of a physician on his shoulder, "in that friendly sort o' way," can do the most good in pointing out the demoralizing influence his habits have reflected upon himself and family, and the majority of cases will submit to nearly

any form of treatment, if they are assured it will be of permanent benefit to them.

The first step regarding treatment is therefore the "sobering up" process, or the recuperative treatment. There is one remedy that bears a greater influence than all others as an antidote for alcohol. This is ammonium chloride in full doses, one-half to one dram dissolved in water, given in one dose, and followed by a copious draught of water. This will not only counteract the effects of the alcohol, and sober up the patient quickly, but will prevent delirium, which often follows alcohol debauches and overcome the craving for alcoholic stimulants. If there are symptoms of delirium, which are not removed by this remedy, full doses of veronal should be given, together with bromides, and other hypnotics; hyoscine is the best remedy for desperate cases. We want the patient to sleep sound, and long, and when he awakens the craving for alcohol has generally disappeared. If he should still crave for the stimulant, it is now the very best time to give him an emetic, together with a full drink of whiskey. A hypodermic injection of ⅛ grain of apomorphine, after he has taken the whiskey, will of course, make the patient very sick, and he will vomit profusely. This may seem like a rather heroic measure, but it will do more good at this time than any other, and the chances are that the patient cannot even bear the smell of whiskey, to say nothing of tasting it, after he has passed through this ordeal. This is the process known as the "barber pole shot," at many "gold cure Institutes," and although we are practicing deception by making the patient believe that he cannot take whiskey and your treatment at the same time, as your medication is a complete antagonist to all forms of liquors; although apomorphine is the best emetic, others can be substituted, and given in the whiskey if desired, but I am thoroughly convinced that the sickening process is the best form of treatment that can be given. Deception or no deception, it will bear its lasting influence upon the patient and do more good.

later, in having the patient totally abstain from drinking, than any means at our disposal, and the best time to use this means is early in the treatment, for after this period has passed, the patient is practically cured, as the only treatment is to restore his appetite, reconstruct his shattered nervous system, and eliminate the remnants of the toxic influence of alcoholism. He should now be encouraged to eat little, and often, and within a few days his appetite will return; his bowels should be kept open, and a systematic course of baths given for eliminative purposes. The following is the general routine of treatment I pursue: I direct the patient to take "the pill that will," (Cannabin compound, page 328), every two or three hours. The Cannabin in this pill is just sufficient to keep his nerves steady, and relieve his tremor and restlessness, while the balance of the medications the pill contains are reconstructive, and nerve tonics, of a superior quality, every drug having a direct influence upon his broken down system. In combination with this pill, the patient is given a teaspoonful of the following mixture after each meal:

℞	Acetate of potassium	4 dr.
	Nux vomica (F. E.)	1 dr.
	Com. fl. ext. Cinchonia	1 oz.
	Aromatic F. E. Cascara Sagrada . q.s.	4 oz.

This medication is given for its diuretic, tonic, and laxative effect. I also give the patient a five-grain capsule of sodium glycocholate before retiring. This is the one remedy in our possession for the congested liver of alcoholism, following a debauch. If there is any one organ of the body which suffers from the continuous use of alcohol it is the liver; it becomes so "parched" by its use that sclerosis may be the final result, and even at this stage, a five-grain capsule of sodium glycocholate, three times a day, will often cure seemingly hopeless cases. Baths constitute one of the most important eliminative measures, and the "boiling out" process will accomplish even more than medicine, in

the final treatment of eradicating the body of the toxic influence of alcohol. The best bath for this purpose is the electric light bath. The patient should be required to take this bath each day, during the treatment, followed by a salt glow and body massage. The time required to conduct the above treatment should occupy at least three or four weeks, until we are satisfied that there is no desire for alcohol, and the body has eliminated, as far as possible, all traces of alcohol. There are several organized companies; prominent among these is the Gatlin Institute, which guarantees to accomplish, in three days, what we have accomplished by the foregoing treatment in three weeks. The catchy caption of "three day cure" was, no doubt, designed for the purpose of corraling the business man, or men who would like to abandon alcohol secretly, but does not care to spend the time, or enjoy (?) the publicity of leaving home, or being an inmate at a so-called Gold Cure Institute.

While we may commend the Gatling gun as a rapid fire arm, we can only condemn the Gatlin treatment as a rapid armament against alcoholism. The only rapid accomplishment it possesses is the transfer of money from the victim to the treasurer of the concern. One of these Institutes is located only a few blocks from my office, and I have carefully observed the results of their treatment, which may be summed up in two words—purgatives and emetics. I had occasion to visit one of the inmates during the second day of his treatment, and he informed me that he had "been vomited and purged at least fifteen times that day." The fact is, the wonderful discoverer of this treatment, no doubt, realized that the more rapidly he could make his patient sick at his stomach, he would incidentally, make him sick of whiskey, if given with the emetic; whether the emetic would be apomorphine. ipecac, or tartar emetic. The purging process also offers the patient a source of amusement It keeps his time occupied, and just think of it, at the end of three

days the patient is discharged, cured This treatment may be used as a preliminary measure, but the reconstructive and eliminative treatment I have previously given is of the greatest importance in removing the toxic influence of alcohol.

THE DRUG HABITS.

Fully eighty per cent. of the adult population of the world are addicted to the use of some form of drug. This may seem like an exaggerated statement; nevertheless it is true. Nearly every nation has their National beverage, which is pregnant with intoxicating alkaloids, and it is the alkaloids that the people really crave. The bitter infusion from tea leaves would not interest people; it is the theine that produces the "cup of cheer." The aroma from coffee would lose its flavor if it were not for the caffeine it contains. The people of Peru would not esteem the cocoa leaves if it were not for the exhilarating cocaine contained in them. These are, therefore, the most universally adopted beverages. If it should become a custom, Cannabis Indica, Hyoscyamus, opium and other drugs would be used in the same manner, yet while habitues of the latter are looked upon as mortals possessed with the evil spirit, the hostess of a fashionable tea party is upheld as a princess De Luxe; yet, in reality, they are addicted to drugs; the only difference is the form of drug, and the effect the excessive use produces.

There seems to be a natural desire among the human family to crave almost any drug which will produce an abnormal condition of the brain; on the other hand, we find habits formed for the most unusual things.

During my speculative years in medicine I accepted a position as physician in charge of one of the "Gold Cure Institutes," for the purpose of learning their "tricks." During my six months' stay I was surprised at the number of people who presented themselves with the different and unusual habits. There was one case with the lead pencil habit. This beautiful young lady

was a clerk in a dry goods store, and acquired the habit of eating lead pencils, which she said she could not resist. She presented all the characteristic symptoms of lead poisoning, with the leaden hue complexion, etc. There were two cases with the clove habits, which shows that it is not only the exhilarating and narcotic effect of drugs some appetites crave for; yet the narcotics and cerebral stimulants are the most frequent of drug forming habits.

After adopting nearly every system for the treatment of the drug habits, I am thoroughly convinced that the gradual reduction method is the safest and easiest way for patients to abandon their habits. Before attempting to treat any form of the drug habits, the first thing for a physician to accomplish is to establish the utmost confidence of the patient. He should have a heart-to-heart talk with the patient, and demand the consent of his faithful co-operation; otherwise, the cure will terminate in a failure. The patient should promise that he will not, under any consideration, take his accustomed drug, only as it is dispensed to him by you. If this rule is made rigid and faithfully observed, the physician should promise in return that he will not allow his patient to suffer undue agony for the want of his drug. Drug habitues are an extremely secretive lot, and unless the utmost confidence is established between patient and physician, it will be observed, during the treatment, that the patient is taking the drug he has secreted for emergency purposes. It is well to advise the patient that he will suffer some little distress, but in due time this will pass over, and he will finally experience no desire whatever.

It might be said that there can be no routine method of treatment for abandoning the drug habit, as each individual case is a law unto itself, and presents characteristics and idiosyncrasies which require individual attention. The physician's judgment and skill is often taxed to bridge over these obstacles as they arise, and endeavor to point the pathway towards success; to ac-

complish this, extreme effort should be made to see that the patient takes less of the drug each day during the treatment. Just the length of time required can never be determined beforehand, but will depend upon the length of time the patient has taken the drug, and his physical condition, and all treatment should be directed to build up his physical condition, in proportion to the amount of drug withdrawn. A hospital or sanitarium is the best place to conduct the treatment, as you can have the patient under your constant care and observation; although cases may be successfully treated in private practice, providing you can trust them.

THE GRADUAL REDUCTION METHOD.

Upon the hypothesis that the patient is a favorable subject, and does not take the drug for the purpose of suppressing pain or organic disease, and his confidence is gained, he should be requested to hand you all the drug in his possession, and syringe, if administered hypodermically. If the accustomed drug should be morphine, and the patient was in the habit of using thirty grains each day, I endeavor to reduce this amount the first day to one-half, making a basis of fifteen grains, to commence the treatment. The patient will withstand this reduction very nicely, as a rule. I now attempt to reduce the drug one grain each day, for eight days; for the next seven days, the drug is reduced one-half grain; thus, at the end of the first two weeks, we have reduced the drug from thirty to three and one-half grains. The next week I attempt to reduce the drug one-half grain each day, and at the end of the third week, if the treatment has been successful, the drug is given up altogether. These rules should be adhered to as closely as possible; although it is frequently necessary to stretch the last end of the treatment a few days longer, and if possible, withdraw the drug several days before the patient is aware of it.

The method of preparing the treatment is very simple. I always weigh out the amount of morphine or

cocaine, or whatever the drug may be. In the above case, it would be fifteen grains the first day, fourteen the next day, and so on down to the minute doses. This is dissolved in an ounce bottle of simple elixir, and the doses are given according to the patient's regular custom, in divided amounts. If the patient was in the habit of taking the drug at four different periods of the day, two teaspoonfuls of the elixir was given at each period, and towards the end of the treatment, quinine is substituted for morphine to disguise the bitter taste.

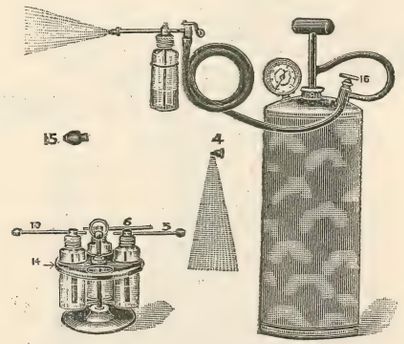
Of course many complications will arise during a course of treatment, but the foregoing is the easiest and best way for the patient to abandon the drug, and the complications can readily be mastered by the physician. Throughout the treatment, the patient should be encouraged to be brave, manly and hopeful to meet the enemy, and "Fight it out on this line," forever. All the eliminative measures used in the treatment of alcoholism are of equal or more importance with the drug habits.

The patient should take electric light or Turkish baths throughout, and after the treatment. The bowels should be kept active, with the formula given on page 372. The liver, as well as the entire glandular system, has been clogged by the use of the drug, and requires stimulation, and the glycocholate of sodium, in five grain capsules, before retiring, is our most effective remedy. Insomnia can generally be overcome by the use of veronal or hyoscine. You will not experience much difficulty in meeting the complications with the gradual reduction method, as the body has sufficient time to become accustomed to the conditions produced by withdrawing the drug. It is the rapid withdrawal method which produces grave results, and alarming symptoms. Analogous to the Gatlin three-day cure for alcoholism, a physician, named Swan, originated the "three-day cure" for the morphine habit. This was first put in practice only a few doors from my office, and later a company was formed, and located in

Cleveland. This, and similar reduction methods, was fully exposed in my former publication, "The Secrets of the specialists," and consists of substituting hyoscine for morphine, and keeping the patient in a narcotic and semi-conscious state for a few days. This, and Livinstein's method, and Dr. Mattison's plan to substitute large doses of bromides for morphine, are too cruel to be practiced by any human physician. And if any physician wishes an enemy for life, he may attempt the use of these methods. The advantage of the gradual withdrawal method is that it may be used with equal results for morphine, cocaine, hyoscine, chloral or any other drug, and if successful, you will have the everlasting gratitude of your patient.

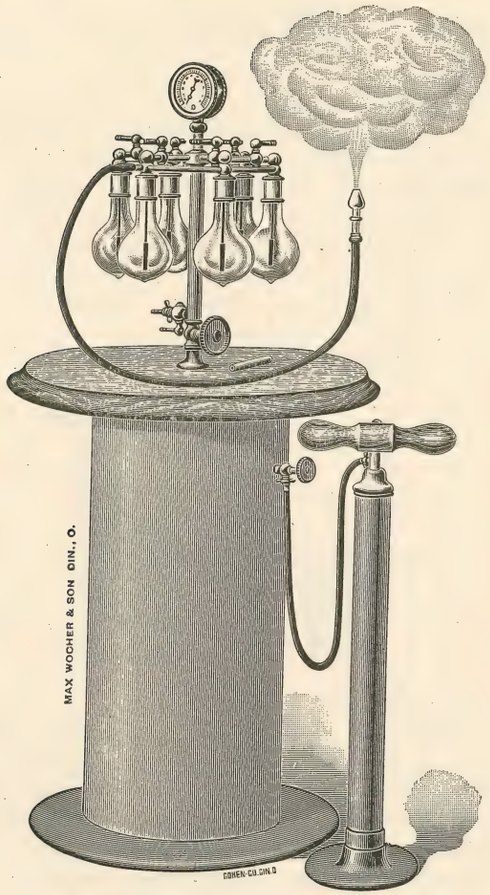
Diseases of the Eye, Nose and Throat

The diseases incorporated under the above caption have constituted the oldest of single or combined specialties, and there are so many valuable and exhaustive text books upon the subjects that no attempt will be made, in this chapter, to cover the field. I will, therefore, only point out what may be considered some of the unusual methods of treatment, which will be of much service to the general practitioner. No physician should



A PRACTICAL $12.50 NEBULIZING OUTFIT.

think of conducting an office practice, or sanitarium, without installing a nebulizer or atomizer outfit; or, some may prefer the more elaborate apparatus known as the Inhalatorium. These may be obtained at prices ranging from $12.50 to several hundred dollars. The small nebulizer, represented here, will render equal service to the more expensive apparatus, but is not as convenient for the physician, or elaborate to please the eye of the patient. In connection with either of these apparatus, the physician should provide himself with a trial case for fitting glasses. This is a very "profitable"



A MODERN NEBULIZING OUTFIT.

branch of office work, which really belongs to the physician, but has been monopolized by jewelers, who know little or nothing regarding the anatomy, physiology, and diseases of the eye; but tinker eyes upon the same principle they do watches. Any physician can acquire a skillful knowledge of refraction in a short time, which will be the means of adding several hundred dollars to his yearly income. Physicians can likewise treat many of the simple diseases of the nose and throat, with equal results, to the city specialists, and the time devoted to the study of these chronic diseases will prove to be one of your most valuable of professional assets

OCULAR THERAPEUTICS.

If I were only allowed one remedy for the treatment of the diseases of the eye, I would unhesitatingly choose oil of thuja, as it will accomplish better results, in a larger range of eye diseases, than any one remedy in our possession.

Although thuja has been extensively used by our eclectic brothers for years, very little has been said regarding its use in diseases of the eye, except by Homeopathic physicians. This, no doubt, has been due to the difficulty in finding a suitable form in which to dispense this drug to the sensitive and delicate membranes of the eye. Alcoholic extracts have, of course, been excluded on account of the irritation they produce, and the oil of thuja I refer to is not the volatile oil of camphoraceous odor found on the market, which is produced by the distillization of thuja in water, but an artificial oil, prepared by distilling thuja in olive, or other vegetable oils, by a special process. This gives us a suitable menstruum in which we may receive the full value of this drug, without producing an irritation, as is characteristic with other preparations of thuja. One of the earliest uses of thuja was its action for restraint, and reduction of hypermetrophic changes in mucous and cutaneous tissues. It will deaden and repress fungous granulations, and has a marked action on such granulations as those of trachoma.

In this disease, thuja cannot be overestimated, as one drop of this oil, applied to the eye three or four times a day, will often produce the most remarkable results. Corneal ulcers and opacities are often, apparently, absorbed, and vanish like magic, as do cystic growths and pterygium, sclerotic and palpebral conjunctivitis. In fact, it is the first remedy I think of in all forms of acute or chronic inflammation, and as a solvent for corneal opacities, growths, etc.

I sometimes think that physicians become stereotyped in their methods of treatment, and this would well describe my attitude in the use of oil of thuja in the treatment of many diseases of the eye.

When the therapeutic action of any single remedy becomes so firmly fixed upon a physician's mind, that he considers it almost a panacea, the practice of medicine loses its scientific aspect; yet after prescribing this remedy for the large variety of classified diseases, in which it seems indicated, and observing its therapeutic value, we must accept the truth, and I believe the oil of thuja will not disappoint reasonable expectations, in the treatment of a large number of the diseases of the eye than any one remedy in our possession. Thuja is slightly anodyne, stimulant, antiseptic, alterative and tonic, and when applied to the eye in the form of a non-irritating oil, it will remove the granulations, and subdue inflammation in tracoma and conjunctivitis. It will often remove pterygium, and the diffuse nebula, or the more dense form called macula, which follows corneal ulcers. In fact, it is the first remedy to be thought of in all acute and low forms of inflammation, and corneal opacities of the eye, and the best of all, it can be applied by the patients at their own home with little or no inconvenience. I usually provide patients with a drachm vial, and a medicine dropper, and instruct them to apply one drop, three times a day. The patient should lie down, to retain the oil in the eye, and after it has been applied, massage the eye over the closed lids.

Dionin is another drug which has a unique position among ophthalmic remedies. This remedy is one of the products of opium, and occurs as a white, odorless, bitter powder, soluble in seven parts of water. This drug is a powerful optical analgesic and lymphagogue. It is superior to cocaine in the treatment of many painful affections of the eye, although it is not a local anesthetic, as is cocaine, as sensibility is not affected but its analgesic effects, in the treatment of many superficial, and deep seated inflammatory and painful affections, as iritis iridocyclitis, glaucoma, ulcers, pain and inflammation of the cornea, gives it an independent, therapeutic value in a large range of application.

Dionin is also a lymphagogue. It produces redness, and a very marked vascular dilation, with abundant lacrymal secretions. The lymphatic channels become distended to several times the size of their normal caliber, thus removing inflammatory exudates, and replacing the tissue with healthy tissue. In this respect, it has been referred to as a counter irritant, and belonging to the same category as Jequirity, in increasing lymphatosis. Dionin is applied to the eye in the form of dry powder, or in aqueous solution, ranging from 2 to 10 per cent. according to the effect desired. When stronger than a five per cent. solution is used, Lacrimation and chemosis of the conjunctiva, and swelling of the eyelids, are characteristics of its use.

As an analgesic, in all painful affections of the eye, Dionin has no superior, in its action upon inflamed mucous surfaces, and is particularly indicated in the deep seated pains, such as accompany glaucoma iritis, iridocyclitis, etc., while in iritis it has a threefold effect; relieving the pain, hastens the absorption of exudates, and assists atropine in dilating the pupil.

In interstitial keratitis it will hasten resolution and rapid healing, and clear the cornea under its influence. Konigstein believes that Dionin is abortive of parenchymatous keratitis, if used in the early stages, but valueless in the later stages.

In resuming the therapeutic value of dionin for the diseases of the eye, its first indication is for the relief

of all pain in the eye, either the superficial or deep seated. One-quarter to one-half grain of the dry powder, or one to two drops of a five to ten per cent. solution, installed in the conjunctival sac, and followed with massage will be attended with some pain; this will subside, however, in a short time, and suppress all pain, which will last from four to eight hours, when the powder, or above a five per cent. solution is used. It will be followed with chemosis of the conjunctiva, which may frighten the patient, if not forewarned. This need cause no alarm, however, as it will rapidly subside, and is even an appearance to be welcomed, as it is in these cases we receive its greatest analgesic effects, and as the apparent irritation it produces subsides, it has a tendency to remove inflammatory exudates, and remove disease. We have, therefore, produced a mild form of disease for the purpose of removing a more serious condition, and this may be compared to the results of vaccination in the treatment of smallpox.

Cineraria Maritina has obtained quite a widespread reputation as a solvent for cataract. This remedy is imported from South America, by some concern in Georgia, and is sold to physicians at $1.25 per drachm vial, which is about one month's treatment. By placing one drop of this remedy in the conjunctival sac, and massaging the eye, there have been many favorable reports given, where it has restored sight by removing the obstruction to vision; while the principal sphere of action concerning this remedy seems to center as a solvent for cataract, it has been recommended for other ocular diseases, corneal ulceration and opacities, injuries to the eyelid, conjunctiva or cornea iritis, catarrhal or muco-purulent conjunctivis, inflammation of the lachrymal gland or of the cellular tissues of the orbit trachama, and in fact, any condition of the eye where an absorbent antiseptic is desired.

Throat and Nose Medications.

Dr. Carl Seiler, of Philadelphia, has become very well known as the author of certain antiseptic preparations. Seiler's Antiseptic Wash is made after the following formula:

℞ Sodium bicarbonate.... 8 dr.
Borax ..... 8 dr.
Sodium benzoate.....20 gr.
Sodium salicylate.....20 gr.
Eucalyptol .....10 gr.
Thymol .....10 gr.
Menthol ..... 5 gr.
Oil wintergreen..... 6 min.
Glycerine .....8½ fl. oz.
Alcohol .....2 fl. oz.
Water.....q. s. ad. 16 pints.

Dr. Seiler gives these directions for preparing the compound: Dissolve all the volatile ingredients in the alcohol, rub up the solution with the sodium salts, and dissolve in the water, finally adding the glycerine. Allow to stand in a large bottle with occasionally shaking for at least two weeks before dispensing. Dr. Seiler has placed on the market also his Antiseptic Tablets, which, dissolved in water, produce a solution similar to the above.

℞ Sod. bicarb.....1 oz.
Sod. boratis.....10 oz.
Sod. chlorid.....1 oz.
Sig.: Add a teaspoonful to a pint of lukewarm water and use with a syringe or atomizer to cleanse the nose from thick mucus and crusts.

℞ Sod. bicarb.....15 gr.
Sod. biborate.....15 gr.
Acid carbol.....4 gr.
Glycerin .....15 min.
Aquæ .....ad 1 oz.
Sig.: Dobell's solution. Dilute with equal parts of water and use with atomizer or snuff up the nose. Simple cleansing solution.

℞ Acidi acetici.....2½ dr.
Glycerin .....3 dr.
Aquæ .....10 oz.
Sig.: To be used as an antiseptic and stimulating wash in the nose and nasopharynx in the course of the exanthematous fevers.

℞ Acidi carbolici.....30 gr.
Ammoni carbonatis.....1 oz.
Pulv. carbonis ligni....1 oz.
Olie lavandulæ.....20 min.
Tinct. benzoin comp...½ oz.
Sig.: Uncork and inhale to relieve the congested condition of the mucous membrane in acute coryza and hay fever.

℞ Acid carbolici.....30 gr.
Ext. pini canadenis dest. .....20 min.
Liq. vaselin.....1 oz.
Sig.: To be used in acute stage of hay fever for the anesthetic effect of the carbolic acid.
—(Ingals.)

℞ Acid chromici cryst...¼ gr.
Aquæ .....1 oz.
Sig.: Ft. nebulæ and use to check sneezing.

℞ Eucalyptol .....15 min.
Menthol .....15 gr.
Camphor .....15 gr.
Ol. pini compilonis....½ dr.
Ol. roasæ.....2 min.
Liq. vaselin. q. s. ad....2 oz.
Sig.: Use in the nose with an atomizer in mild cases of hypertrophic rhinitis.

℞ Ichthyol .....48 gr.
Lanolin .....4 dr.
Vaselin .....4 dr.
Sig.: Use on a cotton-wound applicator to massage the nasal mucous membrane in chronic forms of rhinitis.

℞ Hydrarg. ammoniati....4 gr.
Pulv. sach. albi.....½ oz.
Sig.: Insufflate into the nose to stimulate the mucous membrane in ozæna.

℞ Antipyrin .....15 gr.
Aquæ .....ad 1 oz.
Sig.: To be used in the nose and throat as a hemostatic.

℞ Pulv. fol. matico.
Pulv. amyl. excic, aa equal parts. M.
Sig.: To be insufflated into the nose for epistaxis.

℞ Glycerit. acid. tannici..3 dr.
Aquæ .....ad 3 oz.
Sig.: One teaspoonful to a wineglassful of warm water, to be injected in the nose night and morning, as a remedy for post-nasal adenoids.

℞ Iodini .....10 gr.
Pot. iodidi.....10 gr.
Ol. gaulther.....5 min.
Glycerin .....1 oz.
Make four solutions, varying the amount of iodine and potassium iodide between the limits given in the prescription.
Sig.: In dry rhinitis, pharyngitis, and laryngitis, begin with the weakest solution and gradually increase to the strongest to stimulate the glandular function of the mucous membrane.

℞ Guaiacol .....4 dr.
Olive oil.....4 dr.
Sig.: Apply to the fauces of pharynx in acute tonsillitis and pharyngitis.

℞ Argent. nitrat.....4 dr.
Aquæ dest.....4 dr.

Sig.: It may be used instead of the guaiacol mixture. One or two applications of the above mixture are often sufficient to arrest acute inflammations of the throat and pharynx if applied in the first stage.

℞ Guaiacol .....½ oz.
Ol. amygdalæ dulcis...½ oz.

Sig.: To be applied with a cotton-wound probe in acute inflammation of the throat. It is also applied to relieve pain.

℞ Tr. iodi.....1 dr.
Glycerine .....½ oz.
Aquæ .....3 oz.

Sig.: To be used to moisten compress in laryngitis.

℞ Eucalyptol .....10 min.
Menthol .....5 gr.
Camphor .....5 gr.
Liq. vaselin.....q. s. 5 oz.

Sig.: To be used in acute laryngitis after cleansing the throat with aqueous solutions.

℞ Menthol .....48 gr.
Ol. olive.....q. s. 1 oz.

Sig.: To be applied to the larynx in laryngeal tuberculosis with a cotton-wound applicator, or atomizer. —(Rosenberg.)

℞ Ol. eucalyptol.....2 dr.
Ol. terebinth.....1 dr.
Magnesiæ carb. levis...2 dr.
Aquæ.....q. s. 3 oz.

Sig.: A teaspoonful in a pint of hot water. Inhale the vapor to loosen the secretion and allay the cough in tubercular laryngitis.

℞ Quininæ sulphatis.....½ gr.
Acid carbolici.....½ gr.
Extract. krameriæ....½ gr.
Pep. .....2 gr.

Sig.: Take one before each meal at which meat is taken in cases where there is sluggish digestion with flatulency. This is of special value for vocalists, actors, and speakers, in whom the digestive system is frequently impaired by nervousness.

℞ Potassii chloratis.....2 dr.
Glycerin .....2 dr.
Aquæ .....10 oz.

Sig.: Use as mouth-wash in syphilis during the administration of mercury.

℞ Liq. hydrarg. nitratis...4 dr.
Aquæ .....q. s. 1 oz.

Sig.: To be applied to the sloughing ulcers of tertiary syphilis. As the application is very painful, cocaine should first be applied.

℞ Sodi. bicarb.....10 gr.
Glycerine .....1 dr.
Aquæ .....ad 4 dr.

Sig.: Drop in the ear three times daily to soften inspissated cerumen preparatory to removing with a syringe.

℞ Hydrozone (15 vol.).....3 dr.
Aquæ .....3 dr.

Sig.: Use same as preceding.

℞ Acidi carbolic (1-5 per cent .....1 oz.
Glycerine .....1 oz.

Sig.: Drop into ear to relieve pain in middle-ear inflammation.

℞ Peroxide of hydrogen...1 oz.

Sig.: A few drops into ear in middle-ear suppuration.

℞ Camphor (reduced to a fine powder with a few drops of rectified spirits) ....1 oz.
Chloral hydrate.....1 oz.

Sig.: To be applied externally as an anesthetic in neuralgic and other affections of the throat.

℞ Hydrarg. oxidi rubri....4 gr.
Pulv. sacch. albi.....½ oz.

Sig.: To be blown into the nose after cleansing in ozæna.

℞ Iodoformi .....10 gr.
Menthol .....5 gr.
Lanolin .....½ oz.
Liq. vaselin.....½ oz.

Ft. ung. Sig.: To be applied to the interior of the nose with a brush in ozæna or ulcer of the septum.

℞ Creolin .....4 min.
Aquæ .....1 oz.

Sig.: Antiseptic and deodorant, to be used in atrophic rhinitis, syphilitic and other ulcerations, and in diseases of the accessory sinuses.

℞ Sanguinariæ canadens...1 dr.
Aquæ tepid.....1 oz.

Ft. lotio. Sig.: To be used with an atomizer or syringe morning and night for ozæna.

℞ Zinc sozoiodol.....48 gr.
Talc .....q. s. 1 oz.

Sig.: To be blown into the nose in atrophic rhinitis after cleansing the nose from crusts.

℞ Menthol .....48 gr.
Toluol .....2 dr.
Sol. perchloride iron....1 dr.
Alcohol absolute.....1 oz.

Sig.: To be applied locally in diphtheria or pseudodiphtheria. —(Loffler.)

℞ Acid lactici.....1 dr.
Aquæ .....1 oz.

Sig.: To be used with an atomizer in diphtheria as a solvent of the membranous exudate. —(L. Browne.)

℞ Acid sulphurosi.....¾ oz.
Aquæ .....10 oz.

Sig.: To be used as gargle in diphtheria, pseudodiphtheria, and in mycosis. By some it is considered as almost specific in diphtheria.

℞ Aristol,
Europhen,
Nosophen,
Iodol,
Iodoform.

Sig.: To be blown into the nares in empyemia of the accessory sinuses.

℞ Aluminis .....1 dr.
Acidi tannici.....1 dr.
Aquæ rosea.....10 oz.

Sig.: To be used as a gargle in relaxation of the uvula and congestion of the fauces.

The Dispensary

If I were to choose a text for this chapter, I would quote from the man whom the late Colonel Ingersoll has referred to as "an intellectual ocean whose waves touch every shore of thought,"—Shakespeare—says:

"Who steals my purse steals trash; 'tis something, nothing;
'Twas mine, 'tis his, and has been slave to thousands,
But he that filches from me my good name,
Robs me of that which not enriches him,
And makes me poor indeed."

Rojas has said: "It is the enemy whom we do not suspect who is the most dangerous." I will adopt the Roman sentiment, however, that "it is more honorable to save the citizen than kill the enemy." I will, therefore, endeavor to point out the enemies who are stealing both the physician's purse and his good name, and allow the physician to choose the method of disposing of the evil.

Some physicians do not seem to realize the disadvantages under which they are laboring, both professionally and financially, by not dispensing their own medicines, and there are very few physicians indeed who do not require all the financial and professional support obtainable; and by dispensing his own medicines he not only enriches his purse, but he keeps his professional knowledge within the walls of his cranium, and it does not become the common property of the common people, as it does in the hands of the unscrupulous drug clerk, who assumes the name "Doc," and dispenses the same prescription to Smith, Jones and Brown. It really is like "casting pearls before swine" to place your prescription in some pharmacist's hands.

I do not wish to be understood as condemning the conscientious druggist, but I do wish to condemn the practice of refilling prescriptions promiscuously, and without the consent of the physician who has prescribed it for some specific purpose.

To illustrate one of the most frequent instances, I will briefly cite the following case, which is familiar with most physicians:

The physician writes a prescription for Mr. Brown, for gonorrhoea. The physician's fee is $1.00; the druggist charges $1.00 for the medicine which costs 25 cents. The physician has now lost 75 cents by not supplying the medicine. The patient meets the physician in a few weeks, and advises him that he has had the prescription refilled five times, (pleasant news?); this is $3.75 more profit for the druggist, and loss for the physician. Brown is now cured, and meets his friend Jones, who has the same affliction. Brown advises Jones to go to Doc, the druggist, and have the same prescription filled, and thus an endless chain has been formed. The prescription has become the common property of "Doc the Druggist," and filed away among his private belongings, while the physician wonders why he is living in such a moral community, and results of social evils or "errors" do not present themselves. This is one of the most common forms of practice, and counter prescribing is not confined to any one class of diseases, for many druggists have prescriptions for every known ailment, and are stealing both the purse and good name of the physician, under the pseudonym, "Doc."

There is an old adage "a dollar saved is a dollar earned," and the foregoing is not the only method by which the physician loses money, by not dispensing his own medicines. The next kind of classified thief, who steals his purse, is the manufacturer of proprietary and semi-proprietary medicines, who profusely supplies the physicians with samples, which they claim to be independent chemical products, and, in reality, are only compounds of our cheapest chemicals. This is well

illustrated by the many acetanilid preparations, which in former years, have been offered to the medical profession, under coined names. If we can accept the report of reputable chemists, we find the original formula of Antikamnia, ammonol, etc., to depend upon acetanilid for their active principle. This, combined with a still less expensive product, sodium bicarbonate, was sold to physicians at $1.00 per oz., and, according to the published formula of Antikamnia ,as it was before the pure food and drug law, it contained acetanilid 70 parts, sodium bicarbonate 20 parts, and caffeine 10 parts. Now, supposing the physician had compounded his own Antikamnia, according to the following formula, at the present market price of chemicals, as follows:

℞ Acetanilid . . . . . 1 lb. cost 32 cents
Sodium bicarbonate . . . 4 oz. cost 4 cents
Caffeine . . . . . 2 oz. cost 68 cents

Total $1.04

It will be seen by the above figures that the physician would be receiving 22 ounces of the finished product for, approximately, the same price he paid for one ounce of Antikamnia. (It has been stated that acetphetetidin has replaced acetanilid in the above antikamnia formula).

Many of the pharmaceutical products are manufactured at nearly the same excessive profit. Take Peacock's Bromides as an example. It is claimed by the manufacturers that each fluid drachm contains 15 grains of the Combined Bromides of Potassium, Sodium, Ammonium, Calcium and Lithium; at the present market price, these chemicals may be obtained at the following prices:

℞ Potassium Bromide . . . . 1 lb. 29 conts
Sodium Bromide . . . . . 1 lb. 40 cents
Ammonium Bromide . . . . 1 lb. 44 cents
Calcium Bromide . . . . . ½ lb. 28 cents
Lithium Bromide . . . . . ½ lb. 90 cents
Aromatic Elixir, q. s. . . . . 1 gal. 50 cents

Total $2.81

The above is approximately the same formula as Peacock's. Each fluid drachm represents 15 grains of the combined bromides, but instead of paying $1.00 for an eight ounce bottle, as we do for Peacock's product, we are buying sixteen, eight ounce bottles for $2.81, or less than 20 cents each.

Now we will take Bromidia: this is sold in four-ounce bottles, for $1.00 per bottle. Each dram contains 15 grains of chloral hydrate and 15 grains of bromides. By adding four pounds of chloral hydrate, at $1.06 per pound, or $4.24, add this to the elixir of bromides given above, and we have one gallon of Bromidia, at a total cost of $7.05, or 32 four-ounce bottles, which have cost us about 22 cents each, and Battle & Co. have the courage to ask $1.00 for, substantially, the same product.

While the trade motto of the Peacock Chemical Co. is "the purity of Bromides," the Antiphlogistine Co. has chosen the trade phrase of "bleed but save the blood." I am inclined to favor the last phraseology, as there is no doubt the physician is being bled, and the company is saving the blood. The cataplasm of kaolin, of the U. S. P. is supposed to be similar to antiphlogistine; the formula is as follows:

Kaolin, very fine powder . . . . 9¼ oz.
Boric acid . . . . . ¾ oz.
Thymol . . . . . 4 gr.
Methyl Salicylate . . . . . 15 gr.
Oil of peppermint . . . . . 6 mim.
Glycerine . . . . . 6 oz.

Heat the Kaolin in a suitable vessel at 100 degrees C., with occasional stirring for one hour; mix it intimately with the acid, and incorporate thoroughly with the glycerine; finally add the thymol, which has been previously dissolved in the methyl salicylate and oil, and make a homogeneous mass.

This will produce every result accomplished by the "Denver Mud," and will cost you less than one-fourth the price asked for their semi-secret article.

There is still another class of chemical sharks who require a watchdog to guard the safety of the physician's treasury; they are the aristocratic chemical fakirs who coin names for legitimate chemicals, and attempt to place them in the hands of physicians at a fancy price, under their own trade labels; to illustrate, when Hexamethylenamine was introduced into the therapeutic world as an antiseptic, to the genito-urinary and intestinal tract, it was at once marketed under several trade names, viz.: Urotropin, Formin, Cystogen, etc., with varying prices. You can buy Hexamethylenamine for $1.00 a pound, but when you buy the same chemical product, under the trade name "Urotropin" you pay sixty cents an ounce or $7.20 a pound. You may secure all the Acetylsalicylic acid you desire for $2.40 per pound, but when you secure the same product under the trade name of "Aspirin" you pay forty-three cents an ounce or $5.16 a pound. Phenacetine is now listed at 33 cents an ounce, but when you buy the same product under its correct chemical name—acetphenetidin—you are only required to pay $1.05 for a pound, and you save $2.91 a pound, and so we could go on through long list of chemicals and show you the way physicians have been robbed of their purses from this source. The pharmacists have "become wise" to this, and if you will visit most of their dispensing cases, you will find your "aspirin" prescriptions have been filled from containers labeled acetylsalicylic acid, which is correct, but they no doubt will receive aspirin prices.

I am not attempting to be personal or unjust to any pseudo chemical company, for they are all alike, as far as the profit is concerned, and all the physician has to do is take his pencil and figure out the enormous profit these specialty chemical and drug companies make.

The general physicians' supply houses, chemical and pharmaceutical companies, etc., who furnish a general

line of supplies, including chemicals, drugs, tablets, elixirs, etc., are therefore, the ones to deal with.

THE COST OF DRUGS.

If a physician was engaged in the mercantile business, the first information he would seek to learn would be where he could buy the best goods for the least money, but through his professional weakness, he has accepted St. Paul's advice to "Take what is set before him, and ask no questions." Therefore, the first step towards success is to become familiar with the drug market, and the cost of drugs, and inasmuch as this chapter is published for its practical information, I will give a list of the supplies and catalogues which every physician should have in his laboratory; these may be called the plans and specifications for his work shop, and the drugs and chemicals, the tools of his profession.

Every physician, who dispenses his own medicines, should have either the National or U. S. Dispensatory, and also the National formula; Maltbie's Practical Pharmacy is an excellent little book of reference for the dispensing physicians, and the Physicians' Drug News, published at Newark, N. J., not only keeps you informed regarding the current prices of drugs, but its columns are open to supply physicians with information how to compound difficult pharmaceutical preparations, and private formulas, so they will be palatable, compatible and correct. This journal also publishes each year hundreds of excellent formulas for physicians' use, who dispense their own medicines. In fact it is *the* journal for the dispensing physician.

Another indispensable book is "Merck's Index." This most excellent book, of over four hundred pages, is neatly bound in cloth, and sold to physicians for the modest sum of forty cents, which is less than it costs to publish the volume, and its actual worth is beyond estimation; therefore, send forty cents to Merck & Co., New York City, this very day for this publication; also

request Merck & Co. to send you their current price list of chemicals, alkaloids, new remedies, etc. With these two Merck publications you have a complete working compendium regarding the details, and cost of drugs. Now when some "Specialty" chemical or drug company floods your mail with literature regarding some product they manufacture, (or have manufactured for them), before paying the enormous price they may ask, find out what you could manufacture it for yourself, the same as we have Antikamnia and other products in the foregoing pages.

Under no consideration should any physician prescribe any remedy unless it is supplied with an open face formula, for it places him on an equal basis with the lowest forms of medicine venders; most of the specialty chemical companies attempt to publish their formulas, however, in such a way as to blind the physician. Such products should find everlasting rest in the waste basket. When names are coined for legitimate chemical products, the cost may be figured out as follows: For years, physicians have been required to pay $1.80 per ounce for Aristol, which is a trade-mark or coined name. We now refer to Mercks' Index, page 76; under the name of Aristol, we find its true chemical name to be Thymol Iodide; we now refer to Mercks price list, and find Thymol Iodide is listed at $4.00 a pound, and instead of paying $21.60 for the trade marked article, we have saved $17.60 on one pound. These are the points I wish to make clear. These are the "little things" referred to in the Foreword of this book, and they are the "importance of the insignificant" which will save any physician hundreds of dollars who dispenses his own medicine. To complete the reference library for your dispensary, you should also secure the catalogues and price list from all the legitimate and reliable manufacturing chemical and pharmaceutical companies.

The writer's home city—Detroit—is noted the world over for the superior quality of products it supplies, in the form of pharmaceutical specialties, fluid extracts,

tablets, pills, etc., and their literature will be of much value to you, as will also the catalogues from other firms elsewhere. I would advise you to write to Lloyd Bros., Cincinnati, Ohio, requesting their "Dose Book of Specific Medicines." This will give you much inside information, regarding eclectic practice and medicine. You should also request the "Abbott Alkaloidal Co., Chicago, Ill., to send their valuable catalogues, and secure information regarding Homeopathic remedies from some reliable pharmacy; becoming familiar with the practice from all schools will make you a universal therapeutist and a cosmopolitan physician.

I have absolutely no use for a straight laced physician, who follows the narrow path of any sectarian medical teaching or "pathy," and I feel safe to predict that the time is not far distant when we will have a united medical profession, and all men will worship a universal God, and when we meet the last enemy which physicians have devoted their lives to conquer, and the light of heaven streams down through the gathering mists of death, I wish you a peaceful and abundant entrance into that world of blessedness, where the great riddle of life will be unfolded to you in the quick consciousness of a soul redeemed and purified.

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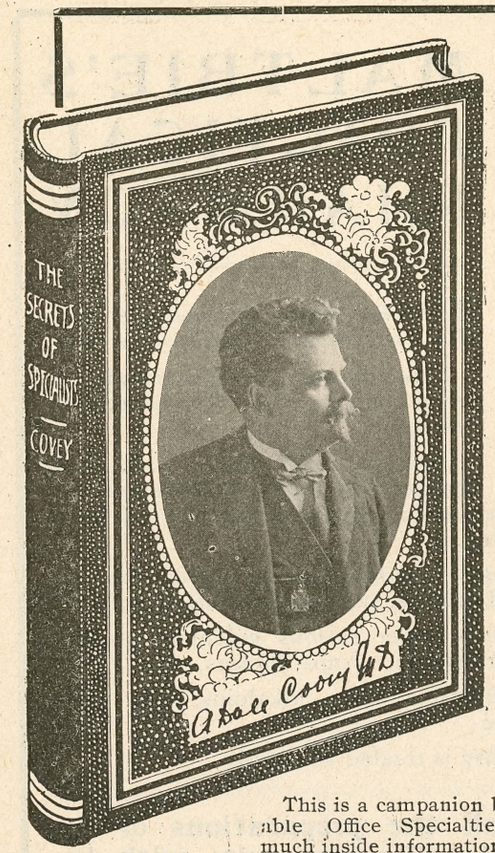

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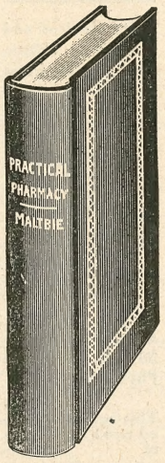

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